SAN TOMAS AQUINO CREEK
Planning Study

consisting of

the

Final Engineer's Report

february 1978

Santa Clara Valley Water District

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SANTA CLARA VALLEY WATER DISTRICT

SAN TOMAS AQUINO CREEK

Bayshore Freeway to Calabazas Basin

Planning Study
consisting of the

FINAL ENGINEER'S REPORT

Project Number 2019

Report Prepared by
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February 1978

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Santa Clara Valley Water District

5750 ALMADEN EXPRESSWAY
SAN JOSE, CALIFORNIA 95118
TELEPHONE (408) 265-2600

February 21, 1978

Honorable Board of Directors
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118

Board Members:

Attached is the Final Engineer's Report on Proposed Flood Control Measures for San Tomas Aquino Creek (Bayshore Freeway) to Calabazas Basin), Project No. 2019. This project is within the City of Santa Clara, the City of San Jose, and the County of Santa Clara in the North Central Flood Control Zone of the Santa Clara Valley Water District.

This report describes the proposed flood control measures consisting of levee construction, channel widening, and channel slope protection. The proposed measures also include minor structural modifications to the Hetch Hetchy Aqueduct.

San Tomas Aquino Creek will remain on its existing alignment. The project length is about 15,150 feet. The estimated cost of the proposed flood control measures is about $2,930,000.

The project can be financed through existing available tax funds generated through the current ad valorem tax in the North Central Flood Control Zone of the District and by a contribution of about $1,140,000 from the City of Santa Clara's Bayshore North Redevelopment Project.

The proposed measures, in conjunction with proposed flood control measures on Calabazas Creek, will protect the area between Calabazas Creek and San Tomas Aquino Creek and between Bayshore Freeway and Route 237 from flooding from the one percent flood.

A negative Declaration was approved by the District Board of Directors for this project. I concur in the project, as proposed, and recommend that a public hearing be held to adopt the final report.

Sincerely yours,

John T. O'Halloran
General Manager

Attachment

AN AFFIRMATIVE ACTION EMPLOYER

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PREFACE

This is a report on the proposed flood control project on San Tomas Aquino Creek from Bayshore Freeway to the Calabazas Retarding Basin in the Cities of Santa Clara and San Jose in Santa Clara County.

This report describes the flooding problem and discusses various alternatives to alleviate the problem and presents estimated costs and impacts of these alternatives. The report includes the description of the proposed project and discusses the cost, benefits, and financing of the project.

The proposed project was recommended by the District staff after they considered the concerns of the residents in the floodplain area and the representatives from the Marriott Corporation. The staff also considered the concerns of federal, local, and state agencies including: The U.S. Fish and Wildlife Service, the California Department of Fish and Game, U.S. Army Corps of Engineers, California Regional Water Quality Control Board, and the City of Santa Clara.

This report will be circulated to interested parties and filed in a public place for review. After the review period, the District Board of Directors will receive comments on the report and the proposed project at a public hearing. The Board has set March 14, 1978, as the date for the public hearing. At this Public Hearing, the Board will either approve or disapprove the project. If the project is approved, final design of the recommended improvements will begin soon after, and construction is expected to begin in the spring of 1978.

If you have any comments or questions about the study, or this report, please contact the person or persons listed in Appendix A.

SUMMARY

In 1964 the District upgraded San Tomas Aquino Creek, between Bayshore Freeway and Calabazas Retarding Basin, for the 50-year storm. Since then, the surrounding land has subsided about 1.5 feet. The present channel capacity varies from a "10% flood" (also called a 10-year flood) between Old Mountain View-Alviso Road and State Route 237, to a "1% flood" (also called a 100-year flood) between Tasman Drive and Old Mountain View-Alviso Road. The channel upstream (south) of Mission College Boulevard is still subject to erosion from high velocity flows. Because of the inadequate capacity of San Tomas Aquino Creek and of Calabazas Creek (westerly of San Tomas Aquino Creek) much of the area north of Bayshore Freeway between these two creeks is subject to flooding. A report on proposed improvements to Calabazas Creek is available at the District office for review.

This report was prepared by the District staff to evaluate the existing and potential problems relating to San Tomas Aquino Creek north of Bayshore Freeway. The objectives of the study were to investigate problems of flooding, erosion, environmental enhancement and possible recreational uses of the creek and to evaluate alternative solutions to these problems. Community participation, environmental analysis, economics, and a determination of the social impacts of the project were all considered by the District staff before choosing the project proposed in this report.

A "building block" concept was used to evaluate alternatives. That is, each reach of the channel was viewed as a separate mini-project. A specific alternative may be feasible for one or two reaches but not necessarily for all reaches. Each mini-project was analysed then connected together to form the proposed project.

The alternatives that were investigated will be described in greater detail in this report, but in summary they are: do nothing, floodwalls, fully excavated channel with a low flow channel, excavation of channel benches, construction of levees, and purchase of floodable property. Where erosion is a problem the use of loose rock, gabions, sacked concrete, and concrete lining was investigated.

The project was discussed with the following interested groups: the public, U.S. Fish and Wildlife Service, California Department of Fish and Game, and various local agencies. In general, the project consists of excavating a trapezoidal channel with a low flow channel and constructing levees. The proposed project includes minor structural modification to the existing Hetch-Hetchy Aqueduct. In those areas where erosion protection is required, loose rock or gabions will be used.

The existing bridge in the westbound lanes of State Route 237 will have to be raised in future years to prevent flooding of Route 237.

The proposed project has been analyzed by the District's Environmental Specialist, Dr. Bernard Goldner. Dr. Goldner has determined that the proposed project will not have a significant adverse impact on the environment. A copy of the

Negative Declaration that was approved by the District's Board of Directors is attached to this Report as Appendix B.

If the proposed project presented in this report is approved, the District staff will prepare plans and specifications for construction of the proposed project. It is anticipated that construction would begin in the spring of 1978.

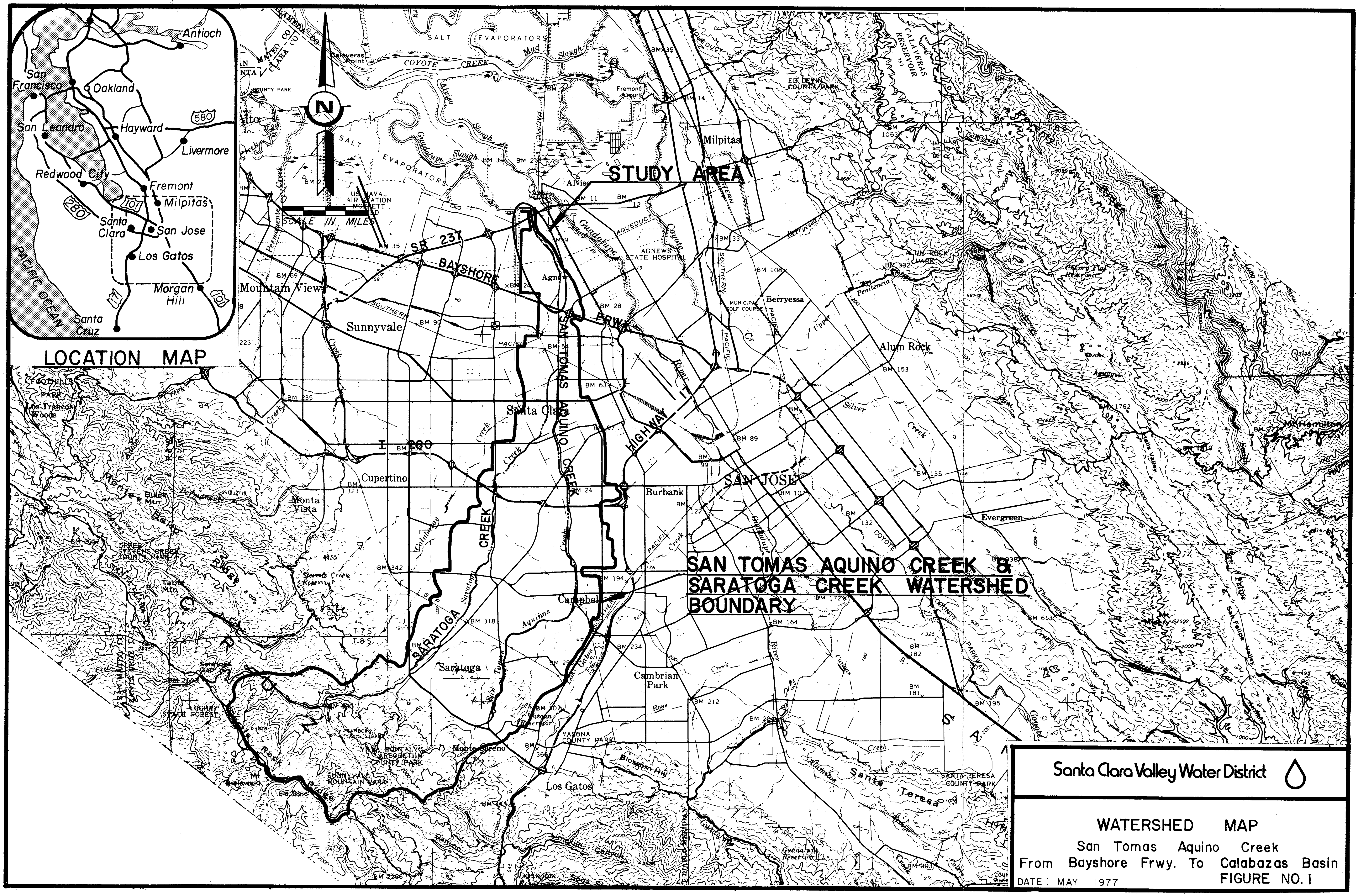
The estimated cost of the proposed project is about $2,930,000 at January 1978 prices. The project will be financed through existing available tax funds generated through the current ad valorem tax in the North Central Flood Control Zone of the District and by a contribution of about $1,140,000 from an assessment district for the City of Santa Clara's Bayshore North Redevelopment Project. The Assessment District's funds will allow an accelerated construction program which will give early flood protection to the City's redevelopment area. No tax increase is necessary to fund this project.

EXISTING SETTING OF THE STUDY AREA

This section of the report describes the location of the project, the limits of the study area, and the creek itself.

General Area

San Tomas Aquino Creek is located within the boundaries of the North Central Flood Control Zone of the Santa Clara Valley Water District. Figure 1 on page 7 is the watershed map for San Tomas Aquino Creek. The creek originates in the lower ranges of the Santa Cruz Mountains above the communities of Saratoga and Monte Sereno. The channel then flows generally in a northward direction forming the city boundaries between Saratoga and Monte Sereno and between Saratoga and Los Gatos. The creek then continues in a northerly direction through the cities of Campbell, San Jose, and Santa Clara finally reaching San Francisco Bay northerly of the City of Sunnyvale. The creek drains an area of approximately 40 square miles. Over half of the watershed area is located on the valley floor and is highly urbanized which results in a greater volume of runoff than would normally occur in an undeveloped area. The average annual rainfall within the watershed area varies from a low of 12 inches per year on the valley floor to a high of over 50 inches per year in the upper reaches of the watershed. There are no reservoirs on San Tomas Aquino Creek or its tributaries which function as a flood control facility.



Santa Clara Valley Water District

WATERSHED MAP

San Tomas Aquino Creek

From Bayshore Frwy. To Calabazas Basin

DATE: MAY 1977

FIGURE NO. 1

The Study Area

The portion of channel that is the subject of this report extends from Bayshore Freeway to the confluence of San Tomas Aquino Creek and Calabazas Creek which is about 15,150 feet downstream (north) of Bayshore Freeway.

The majority of the project is within the City of Santa Clara. A small portion northerly of State Route 237 is within the City of San Jose.

Channel Description

REACH I

This reach extends from Bayshore Freeway to Mission College Boulevard and it is generally adequate to convey the "1% flood" flow but with inadequate freeboard. This reach has also experienced severe erosion in the past. The channel is very sparsely vegetated with much of the vegetation confined to the channel bottom. A significant wildlife habitat does not exist within this area; however, the area does support some birds and squirrels.

The land easterly of the channel is primarily orchard property. Several houses and other buildings are adjacent to the proposed right of way line. At the time this report was prepared some of the orchard trees have been removed and tentative development proposals have been made. The property adjacent to the channel on the westerly side is presently being developed as an industrial park.

REACH II

This reach extends from Mission College Boulevard to Tasman Drive. The existing channel in this reach is inadequate to convey the "1% flood". The capacity is about a "2½% flood" (40-year). The channel in this area is, like the upper reach, sparsely vegetated with much of the vegetation confined to the channel bottom. Due to the tidal influence, which ends about midway through the reach, there is a gradual change in plant communities from a freshwater to a brackish water marsh. The land easterly of the project area from Agnew Road to the Hetch Hetchy pipeline crossing is a residential area. The residences include townhouses and single family units. The townhouses in the near vicinity of the channel generally face the channel and are separated from the channel by a perimeter road (Lake Shore Drive). The single family units are oriented with the backyards adjacent to the channel right of way. The remaining area on the easterly side of the channel between the Hetch Hetchy pipelines and Tasman Drive is owned by the City of Santa Clara. The City anticipates using the property for a sanitary land fill site, or a water tank site.

The property on the westerly side of the channel contains Marriott's Great America Theme Park and its parking lot. The City of Santa Clara has an electrical substation adjacent to Tasman Drive.

REACH III

This reach extends from Tasman Drive to Old Mountain View-Alviso Road. No work is anticipated in this reach. The channel was reconstructed in 1974 and is adequate to convey the "1% flood" flow. As in the upper reaches, much of the vegetation is confined to the channel bottom. This reach is apparently more biologically productive than any of the upper reaches.

REACH IV

This reach extends from Old Mountain View-Alviso Road to State Route 237. This reach of channel has the least capacity of the study area, only having the capacity to convey about 4,000 cfs which corresponds to a "10% flood" flow. The brackish marsh area continues through this reach, slowly changing to a salt-marsh area. The area is very productive and supports a diverse wildlife community. Numerous birds use this area for feeding, roosting, and possibly nesting. The land easterly of the channel is owned by the City of Santa Clara and is zoned for light industrial use. The property on the westerly side of the channel is currently operated as a dairy and retail outlet for dairy products. Numerous buildings and a wastewater pond are adjacent to the proposed channel right of way.

REACH V

This reach of the project extends from State Route 237 to the junction of San Tomas Aquino Creek with Calabazas Creek. From State Route 237 the channel flows northerly for a distance of about 1000 feet and then makes approximately a 90° turn and flows westerly to the junction with Calabazas Creek. This is the most biologically productive reach within the area. There is abundant vegetation on the creek bank along with the growth on the channel bed. This area is subject to daily tidal fluctuation which provides a very diverse wildlife habitat. Many species of birds, including shore birds, hawks, and owls, and many species of animals such as rodents are supported by the habitat. The property easterly and northerly of the channel is owned by the Leslie Salt Company. A portion of their property, lying easterly of the channel, is presently being used for a sanitary land fill project, while the remaining area is being used in their salt production processes. The property on the opposite side of the channel is presently vacant and privately owned. The proposed use of this property is unknown.

THE PROBLEMS

This section describes the previous planning and construction on San Tomas Aquino Creek north of Bayshore Freeway and describes the flooding history, the 1% flood, the flooding potential, the damages from a 1% flood and the erosion potential.

Previous Projects

In 1961 the Santa Clara County Board of Supervisors, acting in behalf of the Santa Clara County Flood Control and Water Conservation District (which later became the Santa Clara Valley Water District), approved a report titled "Engineer's Report of Proposed Improvements for Zone NC-1, the North Central Zone - January 1961". Certain improvements were proposed for San Tomas Aquino Creek, including the reach between the present day Bayshore Freeway and Calabazas Retarding Basin. In 1964 flood control improvements were constructed between Bayshore Freeway and Calabazas Basin in accordance with the recommendations of the 1961 report. The creek was upgraded for the 50-year storm because no significant development was planned for the area in the early 1960's.

Flooding History

The land adjacent to San Tomas Aquino Creek in the project area has experienced many floods in past years. Major flooding has occurred in 1862, 1893, 1911, and 1917 around the turn of the century, and in more recent times major flooding has occurred with much greater frequency, with the Edelweiss Dairy being flooded as late as 1972. Figures 2 and 3 on pages 15 and 16 are maps showing the areas that have been flooded in the past.

During 1964 and 1965 the District constructed the present channel in the study area as an interim project to protect the area from the more frequent floods. The design criterion at that time was for a "50-year storm". This flow rate corresponds today to about a "2½% flood" or a "40-year flood". However, due to land subsidence (about 1.4 feet since 1964) in the area, the design capacity has been reduced in some areas to equal a "10% flood". Table I on page 14 presents subsidence information.

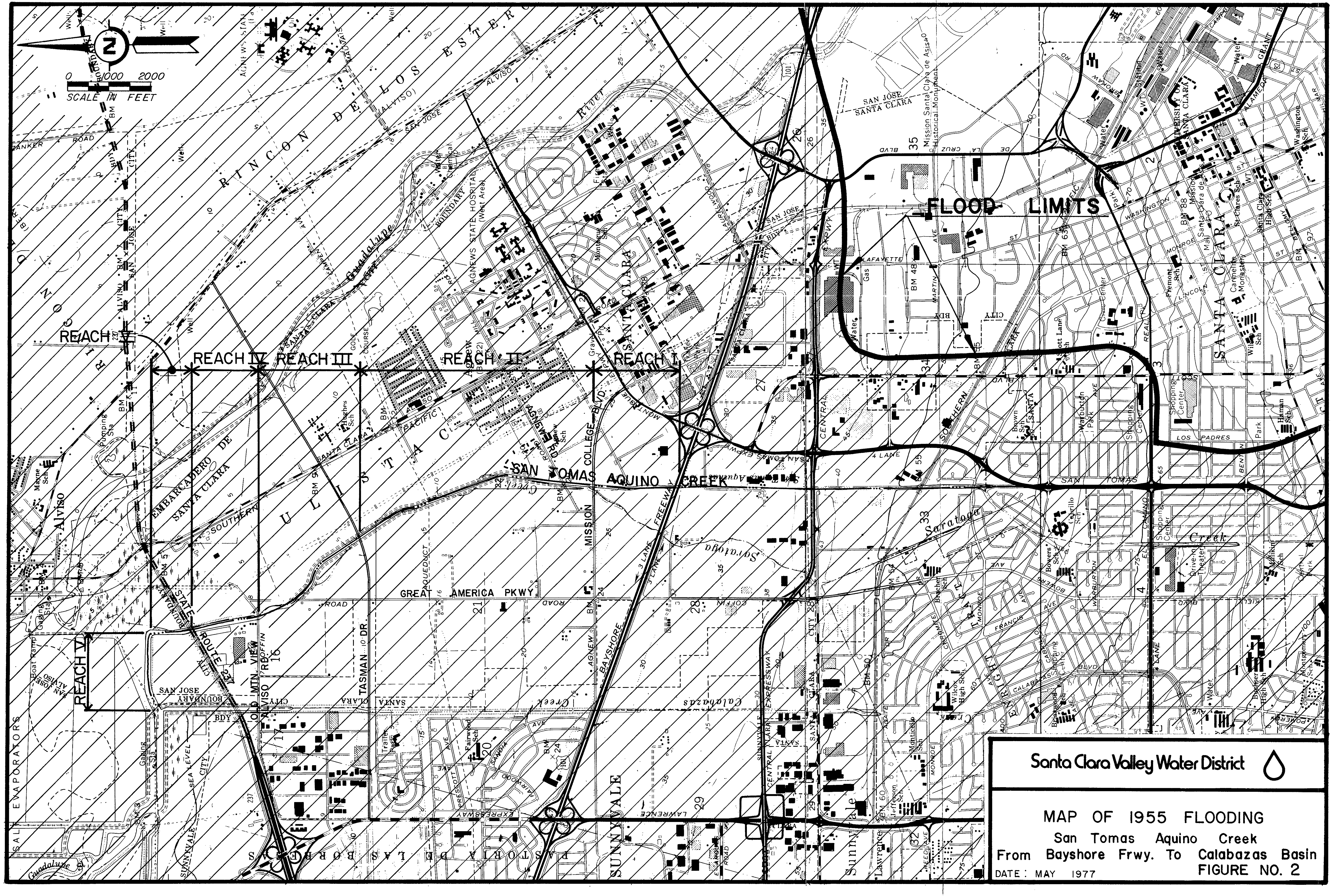
Upstream development and flood protection measures have also had an effect on the flooding problem within the study area. Since 1964 considerable upstream development has occurred which results in both increased runoff and an increased need for protection. Since 1964 the District has constructed flood control improvements to San Tomas Aquino Creek which have provided protection against the "1% flood" to several of these upstream areas.

TABLE 1

Subsidence of TBM #29*

Year	Elevation in feet
1960	13.26
1963	12.16
1964	11.91
1965	11.60
1966	11.20
1967	10.91
1968	10.58
1969	10.44
1970	10.45
1971	10.51
1972	10.44
1973	10.46
1974	10.49
1975	10.52
1976	10.52

* TBM #29 is a square cut in the Northwest corner of Bridge #37-159 over San Tomas Aquino Creek at State Route 237.



Santa Clara Valley Water District

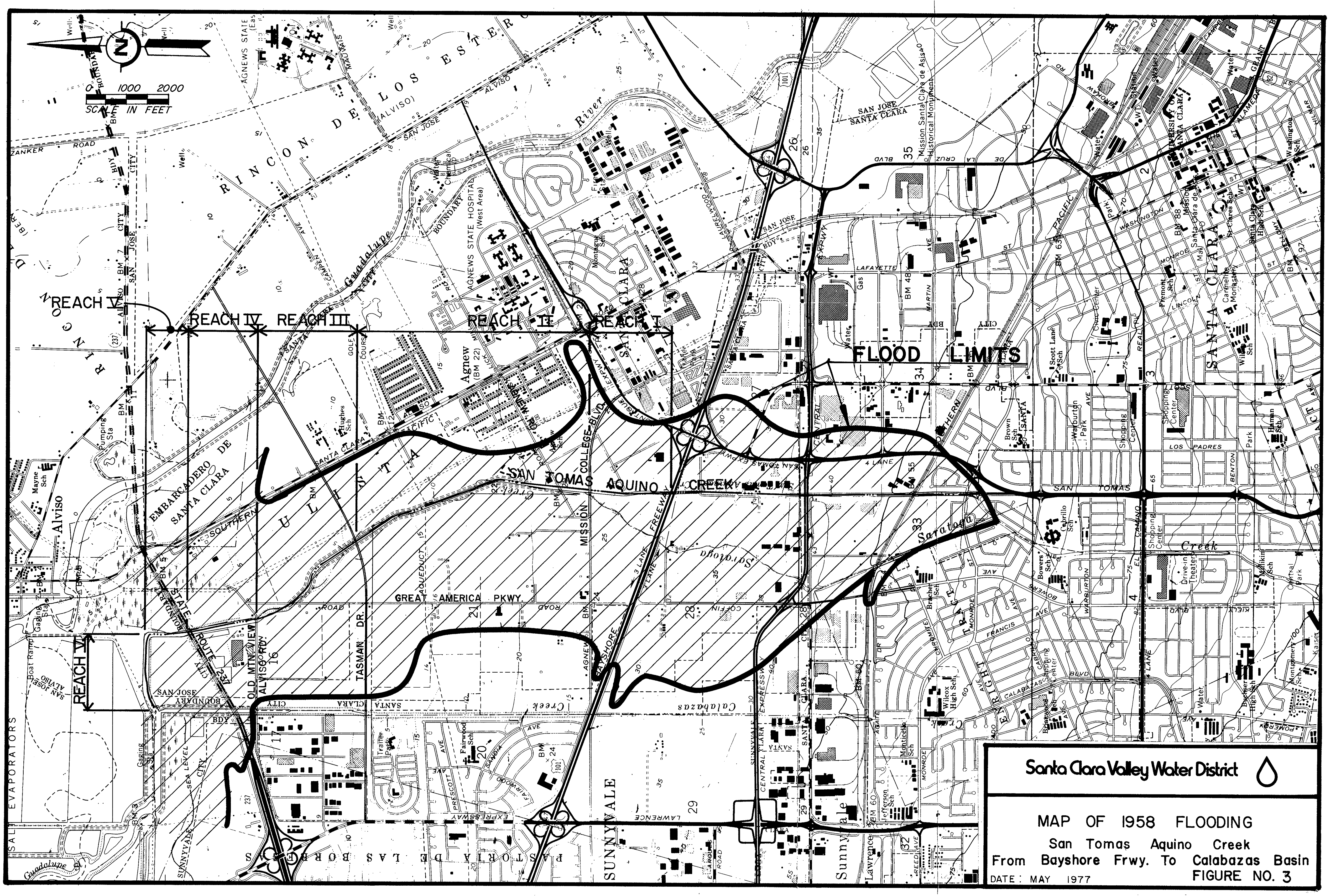
MAP OF 1955 FLOODING

San Tomas Aquino Creek

From Bayshore Frwy. To Calabazas Basin

DATE : MAY 1977

FIGURE NO. 2



Santa Clara Valley Water District

MAP OF 1958 FLOODING
San Tomas Aquino Creek
From Bayshore Frwy. To Calabazas Basin
DATE : MAY 1977
FIGURE NO. 3

The "1% Flood"

The District's Board of Directors has established a policy requiring that a channel with a watershed greater than four square miles be designed to convey the "1% flood". San Tomas Aquino Creek has a watershed of approximately 40 square miles. The "1% flood" is that flow from a drainage area that has a 1% chance of occurring in any given year. The magnitude is equivalent to the so-called 100-year flood but it should not be thought of as an event that occurs regularly every 100th year or once every 100 years. Instead, it is the flow that would be equaled or exceeded about 100 times in 10,000 years. It is possible that two repetitions of this flow could occur in one year or that the event may not occur even once in 200 years. For a more complete description of the 1% flood and the determination of its magnitude, turn to Appendix C.

Existing Flooding Potential

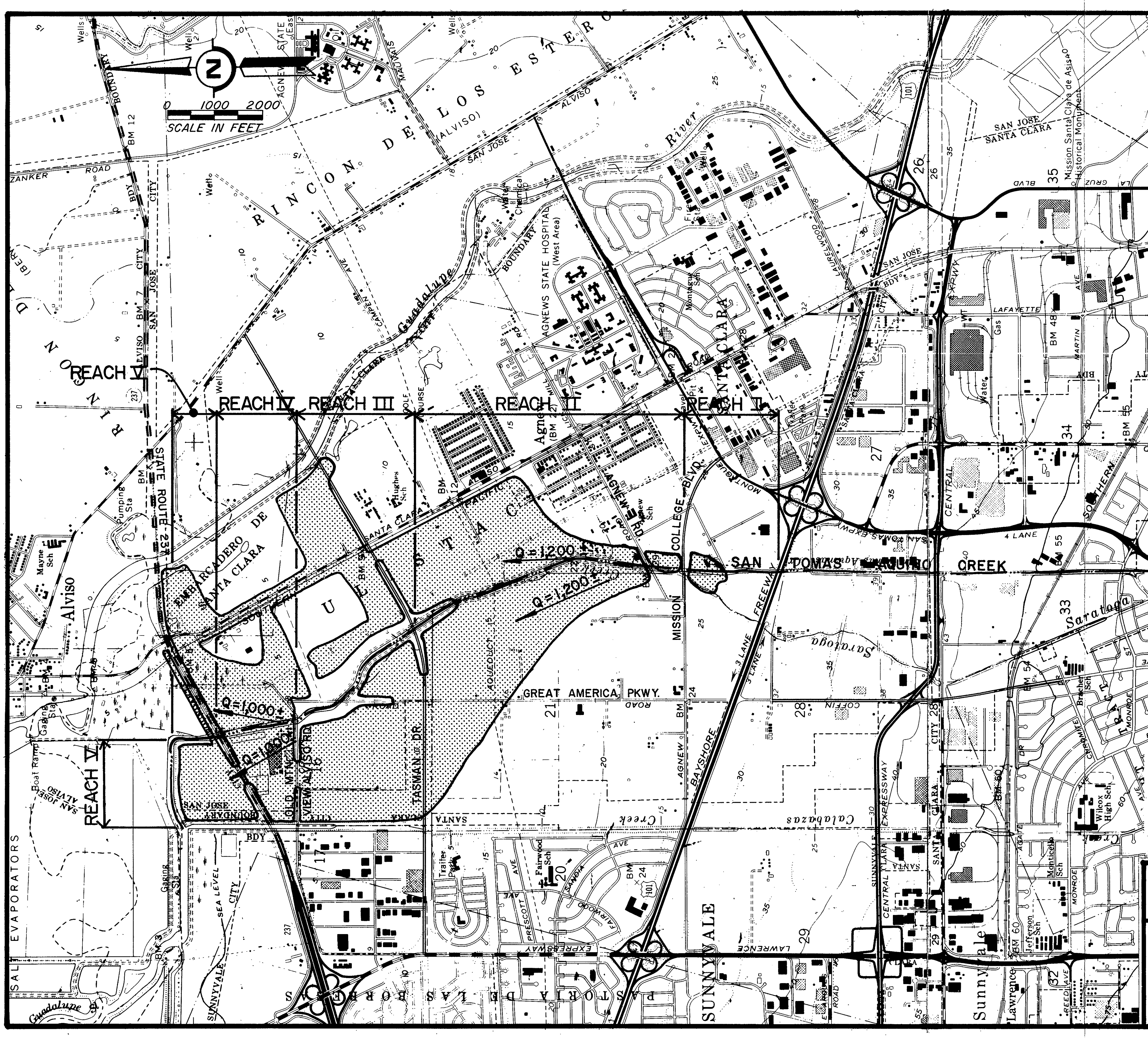
Reach 1	Bayshore Freeway to Mission College Boulevard 7500 cfs; 2% flood = 50-year flood
Reach 2	Mission College Boulevard to Tasman Drive 6000 cfs; 3% flood = 33-year flood
Reach 3	Tasman Drive to Old Mountain View-Alviso Road 9100 cfs; 1% flood = 100-year flood
Reach 4	Old Mountain View-Alviso Road to State Route 237 4000 cfs; 10% flood = 10-year flood
Reach 5	State Route 237 to confluence with Calabazas Creek 8000 cfs; 2% flood = 50-year flood.

Figure 4 on page 19 is a map showing the areas subject to flooding from a "1% flood" from San Tomas Aquino Creek. Calabazas Creek would also contribute to the flooding but this flooding is not shown on Figure 4. A separate construction project to provide flood protection from Calabazas Creek is discussed in a separate report.

Figure 4 shows some minor flooding upstream of Agnew Road, however significant overbank flow will occur downstream of Agnew Road. A point of clarification regarding the flood map; the flood-prone areas shown on Figure 4 were determined as part of an economic study for San Tomas Aquino Creek. Figure 4 shows the area that would be flooded and should not be used to determine depths of flooding or extent of flooding for specific locations, since the available topographic information was limited to U.S.G.S. quadrangle maps. No attempt was made to identify flooding due to any inadequate interior drainage (local drainage) systems.

The Damages

It is estimated that under existing conditions the damages from a "1% flood" would be about $1,300,000. If the areas subject to flooding were developed according to the master plan of the City of Santa Clara the damages would be about $3,000,000. These are direct damages to structures and their contents and do not include damage to yards, landscaping or other property outside of the buildings. There are some indirect damages for which no dollar value has been estimated. These are, disruption of travel, communications, utility services, business activities, and evacuation and reoccupation of flooded areas. The damages also do not include the cost of the emergency measures that would be undertaken in an attempt to prevent flooding.



LEGEND:

▨	Limits of Flooding from 1% (100 Year) Flood
Q = 1,200	Value of Overland Flood Flows (in c.f.s.)

Santa Clara Valley Water District

1% FLOOD

San Tomas Aquino Creek

From Bayshore Frwy. To Calabazas Basin

DATE: MAY 1977

FIGURE NO. 4

Erosion Potential

A severe erosion problem exists in the creek from Bayshore Freeway to Agnew Road. The next section discusses solutions to this problem.

THE PROPOSED SOLUTIONS

This section discusses the possible solutions, the design criteria, the specific alternatives studied the proposed project, the estimated costs for the alternatives, and the estimated cost of the proposed project. This section also discusses each reach of the channel.

There are many flood prevention and floodplain management alternatives available to protect the public and its property from flood damages. These potential alternatives are reduced in number by the physical and environmental controls of the flood prone area and the existing channel, by the economic aspects of the flood problem, by the financial limitations of the governing agency and by the social attitudes of the public. All of these factors, to some degree, narrow the practical alternatives to a manageable few. From these alternatives, the proposed project is recommended.

With regard to San Tomas Aquino Creek, these factors combined to eliminate many of the possible alternatives. Furthermore, environmental and social concerns precluded channel construction which would produce serious adverse impacts on the existing environment. As stated earlier, the building block concept was used. This concept excludes specific alternatives in one reach but may allow these alternatives in other reaches.

By considering all factors involved, it became apparent to the District staff that the solutions most worthy of consideration were those that preserved as much of the existing channel as possible and yet provided flood protection and erosion control at a reasonable cost. The proposed channel consists primarily of levee raising in the lower reaches and channel widening with levee raising in the upper reaches.

Design Criteria

The design of all the alternatives was based on generally accepted engineering criteria for flood control projects and upon District policy.

The alternatives were designed to convey the "1% flood" with standard freeboard. These are various methods to determine the freeboard. The freeboard for San Tomas Aquino Creek is the water surface profile elevation for the upper 80 percent confidence limit flow rate. This flow rate is 12,100 cfs. In the lower reaches of the project the levee heights will be increased an additional one foot to account for potential future land subsidence.

The water surface profiles were calculated by using a standard computer program. A coefficient of roughness (Manning's "n") of 0.030 was used in the calculations. This value accounts for some vegetation and landscaping within the channel. It is proposed that the channel side slopes be hydroseeded with a grass mixture and that landscaping be planted as soon as possible after construction.

The channel side slopes were analysed to see if they should be protected from erosion. When the flow velocity exceeds the allowable velocity for a 2% flood flow, some type of channel armoring should be provided.

Erosion protection could be in the form of grass lining gabion lining, loose rock, sacked concrete, or concrete lining. Where the velocities exceeded the allowable values, channel slope protection was included in the design.

Maintenance was also considered in the design of the channel configuration. At the present time the channel bottom has no cross slope, and, as seen in the drawings, channel meanders have formed. These meanders will, if left uncorrected, direct the flow from one bank to another causing severe erosion. The channel was designed to concentrate the low flows to the center of the channel by providing a cross slope. The cross slope will eliminate the meanders but will allow vegetation to grow adjacent to the toe of the slopes.

Description of Alternatives Studied

The description of alternatives that were investigated will be described on a reach by reach basis except for the "no-project" alternative which will be discussed later in the report.

REACH I

This reach begins at Bayshore Freeway and extends northerly, about 2,000 feet, to Mission College Boulevard. The channel is very sparsely vegetated with much of the vegetation confined to the channel bottom. A significant wildlife habitat does not exist within this area; however, the area does support some birds and squirrels.

The land easterly of the channel is primarily orchard property. The property owner's houses and several buildings are adjacent to the proposed right of way line. At the time this report was prepared some of the orchard trees were removed for possible development of the site. The property adjacent to the channel on the westerly side is presently being developed as an industrial park.

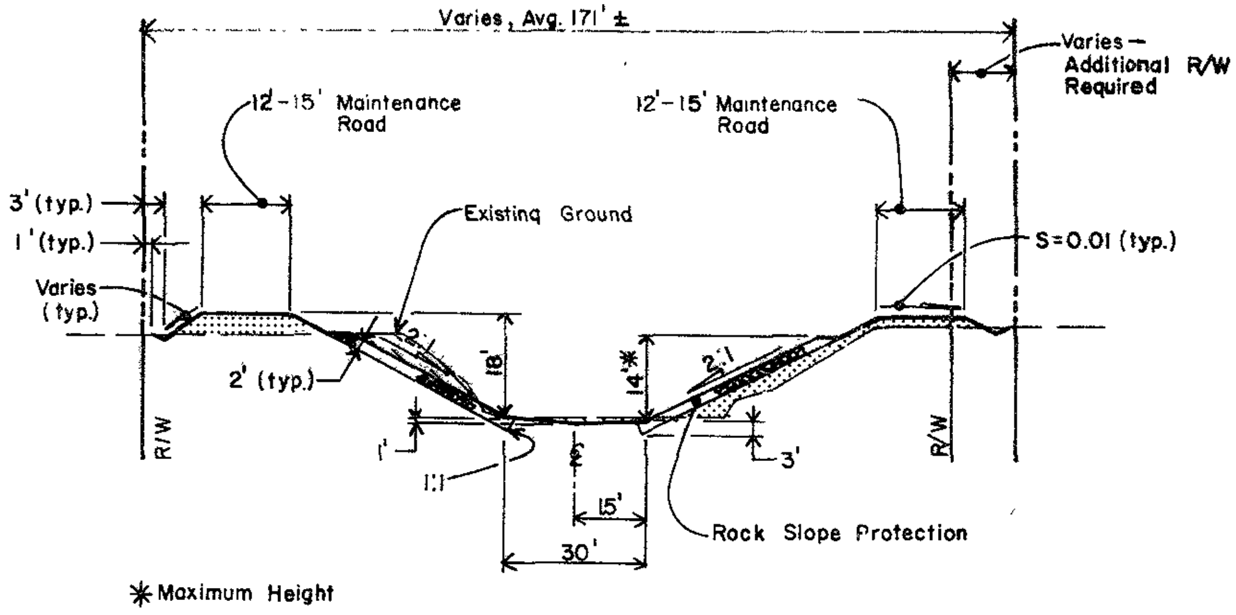
The existing channel is inadequate to convey the "1% flood" and is subject to severe erosion. The capacity is about a "2% flood".

The alternatives that were considered for this reach included: a rock-lined channel with levees, a gabion-lined channel with levees, and floodwalls with erosion protection where it is required. Figures 5 and 6 on pages 26 and 27 are typical sections of the alternatives.

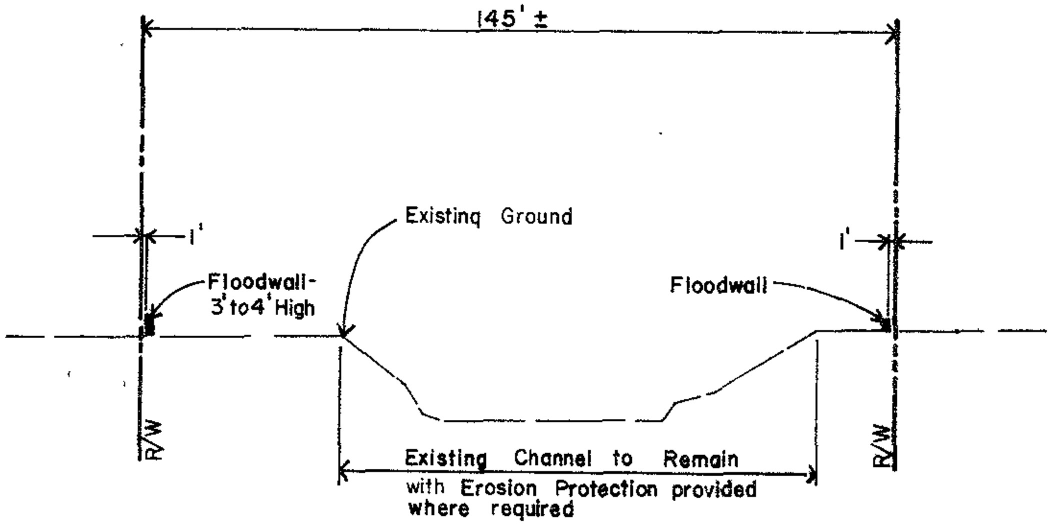
The gabion-lined channel with levees is the proposed alternative for this reach. Floodwalls with erosion protection and the rock-lined channel are more expensive alternatives. Table 2 on page 28 shows the costs of the alternatives investigated.

After installing the gabions, which are wire baskets filled with stones, a thin layer of soil will be spread over them and then planted with a grass mixture.

Additional right of way will be required on the easterly side of the channel. The width of the additional right of way varies and is shown on the plans. The width of the maintenance roads will be modified in the vicinity of the structures on the easterly side so that the existing buildings and large trees will not be disturbed.



ROCK LINING
(NOT PROPOSED)


145' ±
1'
1'
Existing Ground
Floodwall- 3' to 4' High
Floodwall
R/W
R/W
Existing Channel to Remain with Erosion Protection provided where required

FLOODWALLS
(NOT PROPOSED)

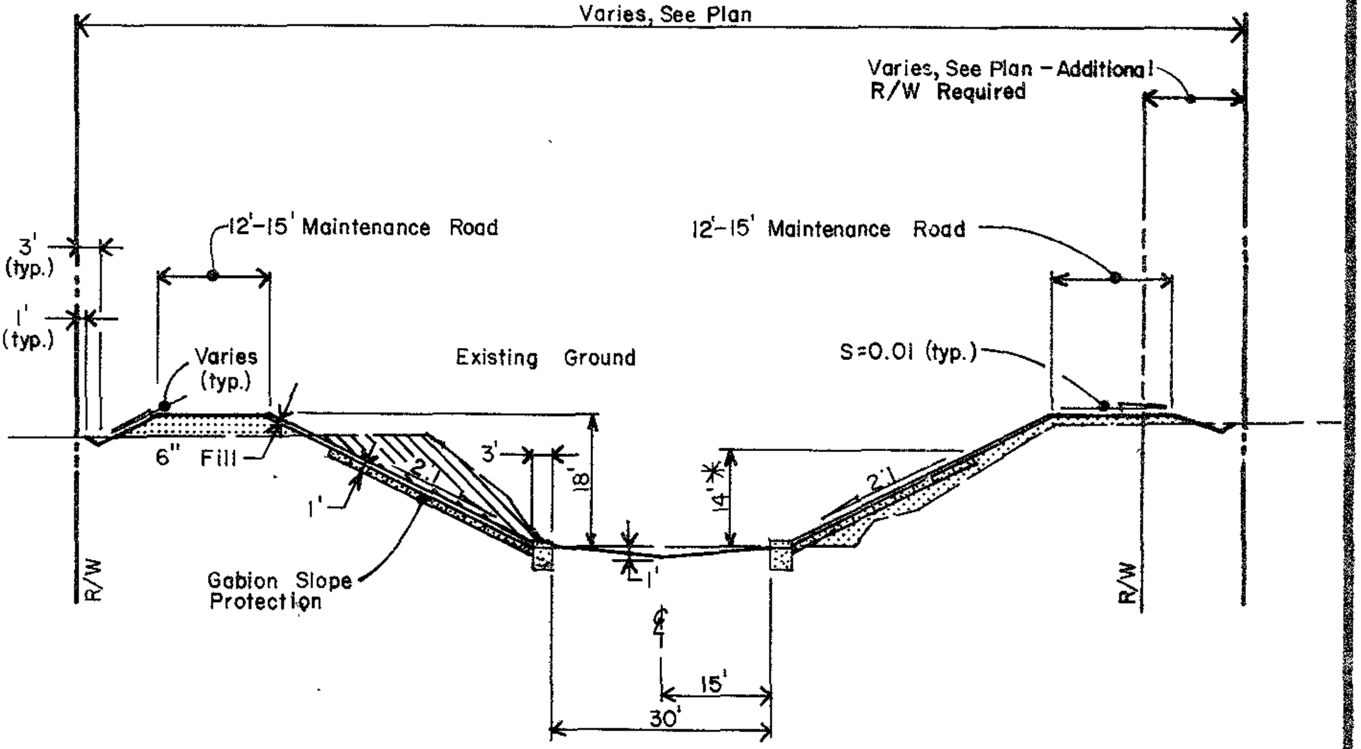
NOTES:

1. All Cross-Sections shown are viewed Looking in the Downstream direction.

░ FILL
▨ EXCAVATION

Santa Clara Valley Water District

ALTERNATIVES
REACH I
San Tomas Aquino Creek
From Bayshore Frwy. to Mission College Blvd.
DATE MAY 1977
FIGURE NO. 5



* Maximum Height

GABION LINING
(PROPOSED)

NOTES

1 All Cross – Sections shown are viewed Looking in the Downstream direction

▨ FILL
▨ EXCAVATION

Santa Clara Valley Water District

PROPOSED TYPICAL CROSS SECTION
REACH I
San Tomas Aquino Creek
From Bayshore Frwy. to Mission College Blvd.

Date May 1977

FIGURE NO. 6

ALTERNATIVE COSTS

Table 2 - Reach 1

Limits	Alternative	Construction Cost	R/W Cost	Engineering & Contingencies	Total Project Cost
Bayshore Frwy to Mission College Blvd.	Trapezoidal channel with gabion lining	665,000	40,000	235,000	940,000
Bayshore Frwy to Mission College Blvd.	Trapezoidal channel with loose rock lining	660,000	65,000	230,000	955,000
Bayshore Frwy to Mission College Blvd.	Floodwalls with erosion protection where required	835,000	-0-	295,000	1,130,000

REACH II

This reach extends from Mission College Boulevard northerly to Tasman Drive, a distance of about 5,600 feet. The existing channel in this reach is inadequate to convey the estimated "1% flood". The capacity is about a "3% flood" (33-year frequency). From Mission College Boulevard to Tasman Drive, the channel slope becomes flatter and the velocities become lower, eliminating much of the need for the slope protection required in Reach I.

The channel in this area is, like the upper reach, sparsely vegetated with much of the vegetation confined to the channel bottom. Due to the tidal influence which ends about midway through the reach, there is a gradual change in plant communities from a freshwater to a brackish water march.

The land easterly of the project area from Agnew Road to the Hetch Hetchy pipeline crossing is a residential area. The residences include townhouses and single family units. The townhouses in the near vicinity of the channel generally face the channel and are separated from the channel by a perimeter road (Lake Shore Drive). The single family units are oriented with the backyards adjacent to the channel right of way. The remaining area on the easterly side of the channel between the Hetch Hetchy pipelines and Tasman Drive is owned by the City of Santa Clara. The City anticipates using the property for a sanitary land fill site, or for a water tank. Marriott's Great America Theme Park and its parking lot are on the westerly side of the channel. The City of Santa Clara has an electrical substation adjacent to Tasman Drive.

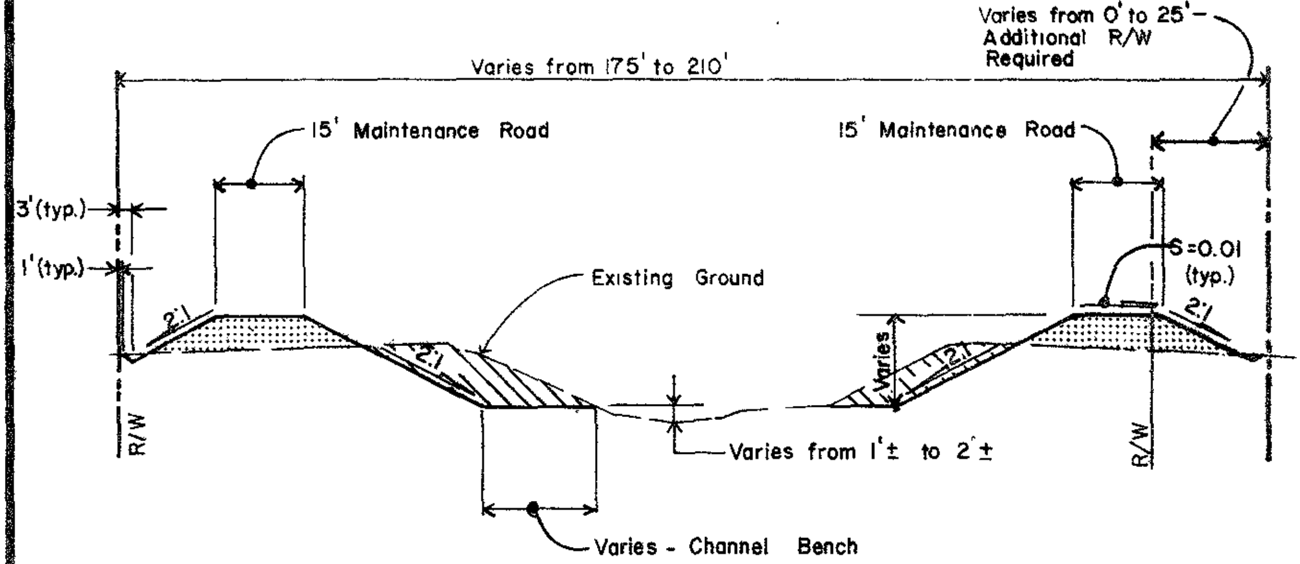
The alternatives considered for this reach were: an excavated channel with levees, excavated channel benches with levees, levees with erosion protection where required, and floodwalls with erosion protection where required. Figures 7, 8, and 9 on pages 31, 32 and 33 are typical sections of the alternatives studied.

The excavated channel with levees is the proposed alternative for this reach. As shown on Table 3 on page 34, this is the most economical alternative.

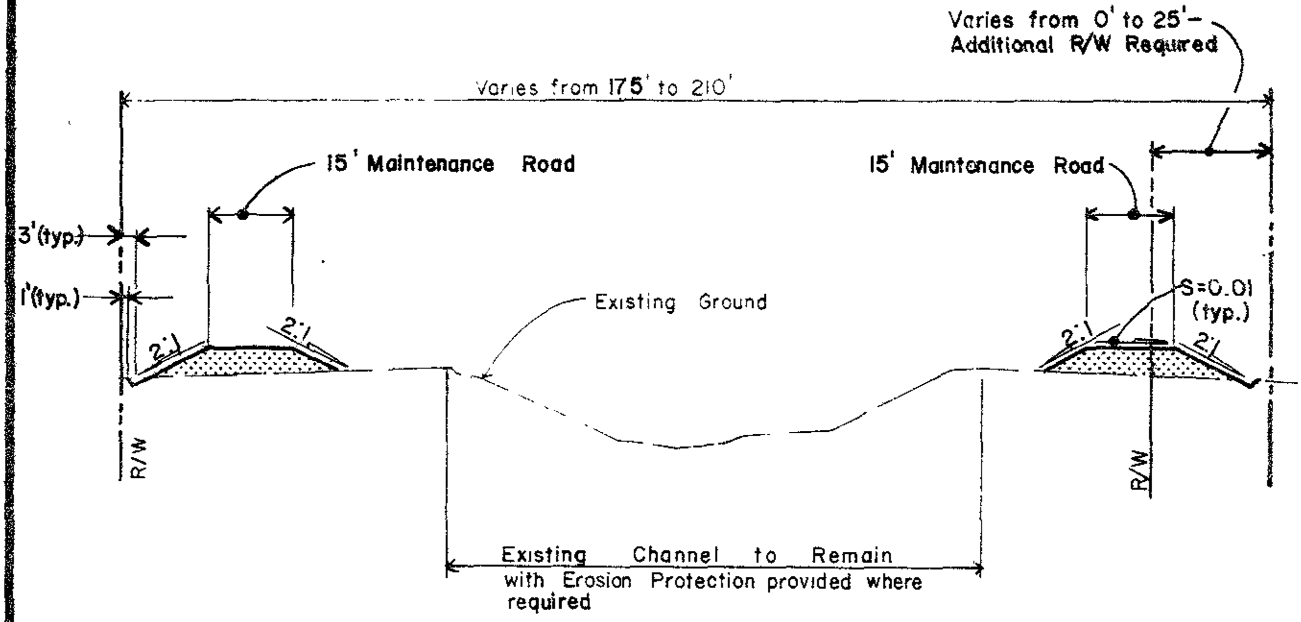
By constructing the excavated section that is proposed, the need for erosion protection is minimized. At the present time, channel meanders have begun to form which will force the water from one bank to another causing erosion problems. The proposed section will have a cross slope in the channel bottom which will concentrate the low flows in the center of the channel. After construction the area will be planted with a grass mixture which will provide some erosion protection and will present a pleasing appearance.

Additional right of way will be required on the easterly side of the channel between Mission College Boulevard and Agnew Road and from the City of Santa Clara property northerly of Agnew Road. The width of the additional right of way varies and is shown on the plan.

There are two streets crossing this channel at the upper end of this reach. The bridge at Mission College Boulevard, which was recently built, is adequate to convey the "1% flood" with freeboard. The upstream gabion lining will be extended



TRAPEZOIDAL CHANNEL WITH EXISTING CHANNEL AS LOW FLOW CHANNEL
(NOT PROPOSED)



LEVEE RAISING
(NOT PROPOSED)

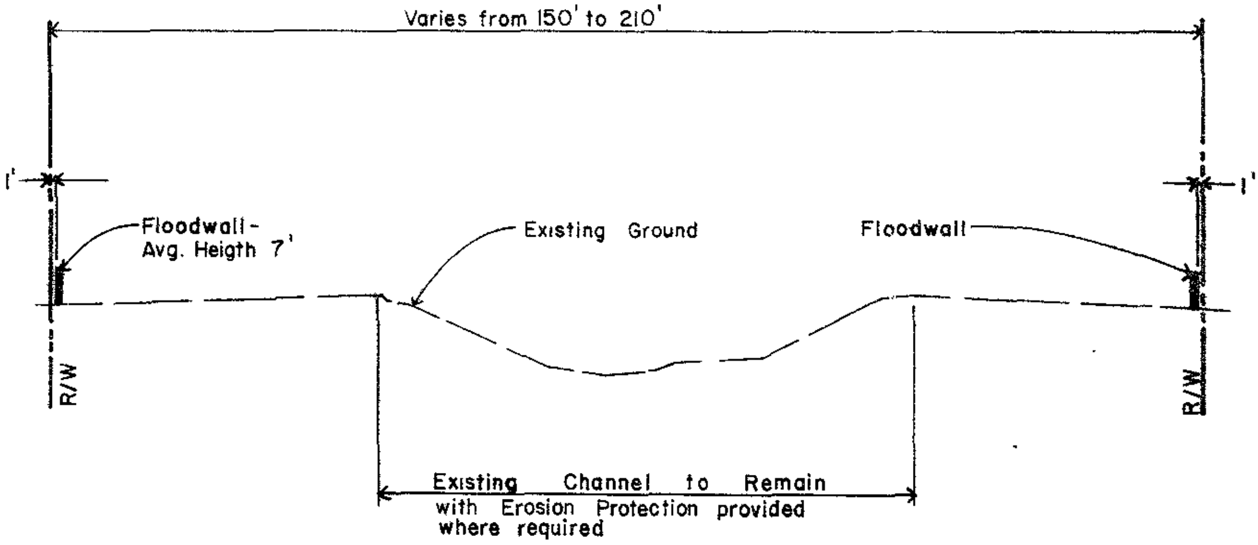
NOTES:

1. All Cross - Sections shown are viewed Looking in the Downstream direction.

▒ FILL
▨ EXCAVATION

Santa Clara Valley Water District

ALTERNATIVES
REACH II
San Tomas Aquino Creek
From Mission College Blvd. to Tasman Dr.
Date May 1977
FIGURE NO. 7


Varies from 150' to 210'
1'
1'
Floodwall - Avg. Heigth 7'
Existing Ground
Floodwall
R/W
R/W
Existing Channel to Remain with Erosion Protection provided where required

FLOODWALLS
(NOT PROPOSED)

NOTES:

1. All Cross - Sections shown are viewed Looking in the Downstream direction.

Santa Clara Valley Water District

ALTERNATIVES
REACH II
San Tomas Aquino Creek
From Mission College Blvd. to Tasman Dr.

Date. May 1977

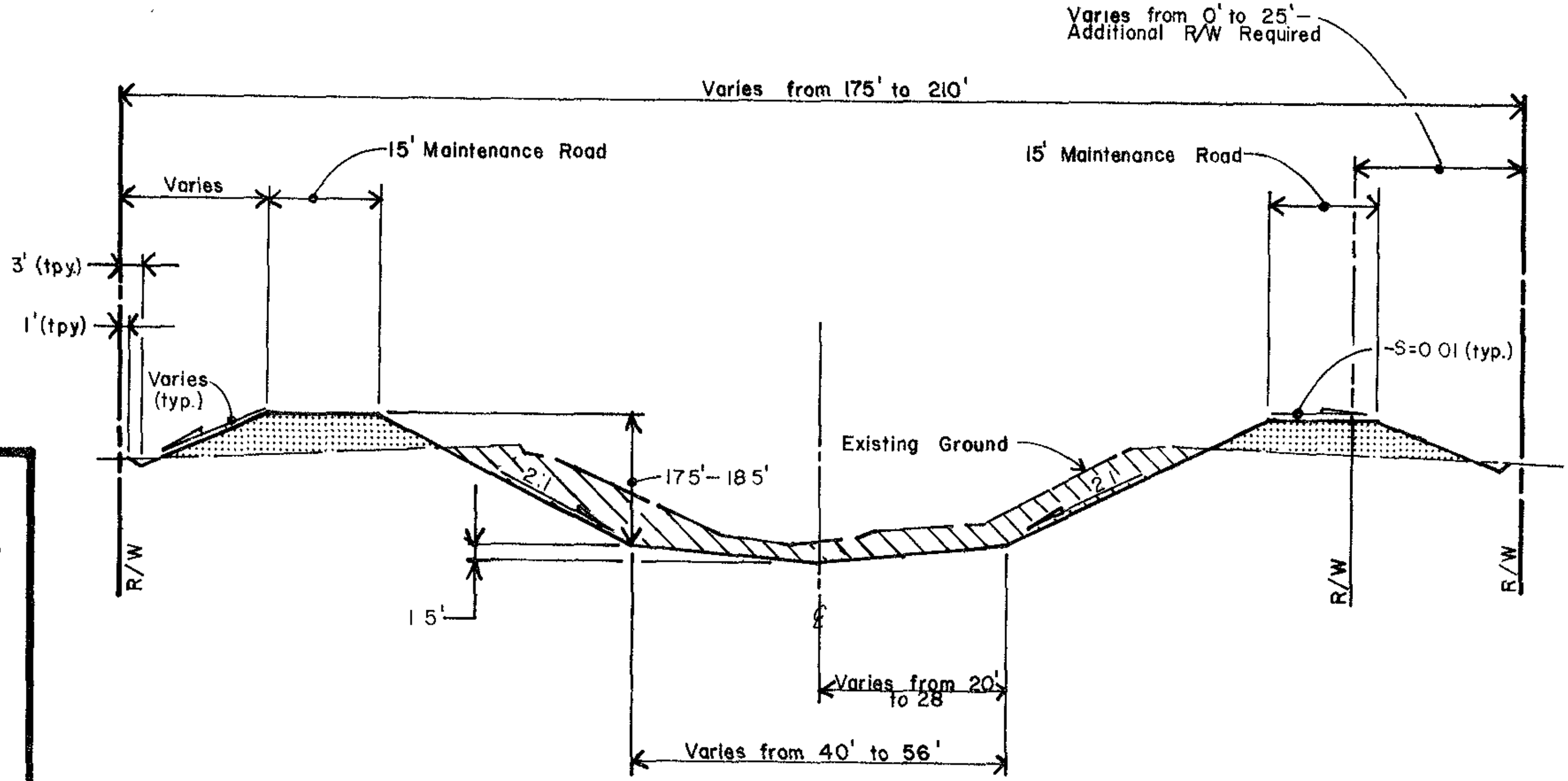
FIGURE NO. 8

NOTES

. All Cross - Sections shown are viewed Looking in the Downstream direction

▒ FILL

▨ EXCAVATION



TRAPEZOIDAL CHANNEL WITH CONSTRUCTED LOW FLOW CHANNEL

(PROPOSED)

Santa Clara Valley Water District

PROPOSED TYPICAL CROSS SECTION
REACH II
San Tomas Aquino Creek
From Mission College Blvd. to Tasman Dr.
FIGURE NO. 9

Date May 977

ALTERNATIVE COSTS

Table 3 - Reach 2

Limits	Alternative	Construction Cost	R/W Cost	Engineering & Contingences	Total Project Cost
Agnew Rd. to Tasman Dr.	Floodwalls 7 feet ± high	1,250,000	-0-	435,000	1,685,000
Agnew Rd. to Tasman Dr.	Levee construction with erosion control	570,000	3,000	200,000	773,000
Agnew Rd. to Tasman Dr.	Trapezoidal channel with existing channel as low flow channel	520,000	20,000	185,000	725,000
Agnew Rd. to Tasman Dr.	Trapezoidal channel with constructed low flow channel	505,000	20,000	175,000	700,000

through the bridge as shown on the plans. The Agnew Road Bridge, however, is not adequate to convey the "1% flood" with freeboard. The soffit of the existing bridge is submerged under these flow conditions; however, the water surface is at the same elevation as the roadway. Since the existing roadway at the bridge is not subject to flooding, it is proposed that the existing bridge be left in place at this time. The upstream headwall of the bridge will be reconstructed to provide additional freeboard. If, in the future, the City of Santa Clara wishes to widen the bridge, the District may participate in a cost-sharing agreement to reconstruct the bridge. The bridge at Tasman Drive is adequate to convey the "1% flood" with freeboard.

REACH III

This reach extends from Tasman Drive to Old Mountain View-Alviso Road, a distance of about 2,800 feet. No work is anticipated in this reach. The channel was reconstructed in 1974 and is adequate to convey the "1% flood". As in Reaches I and II, much of the vegetation is confined to the channel bottom. This reach is apparently more biologically productive than any of the upper reaches.

REACH IV

This reach extends from Old Mountain View-Alviso Road to State Route 237, a distance of about 2,200 feet. This reach has the least capacity of the five reaches. Reach IV has the capacity to convey about 4,000 cfs which corresponds to a "10% flood". The brackish marsh area continues through this reach, slowly changing to a salt-marsh area. The area is very productive and supports a diverse wildlife community. Numerous birds use this area for feeding, roosting, and possibly nesting.

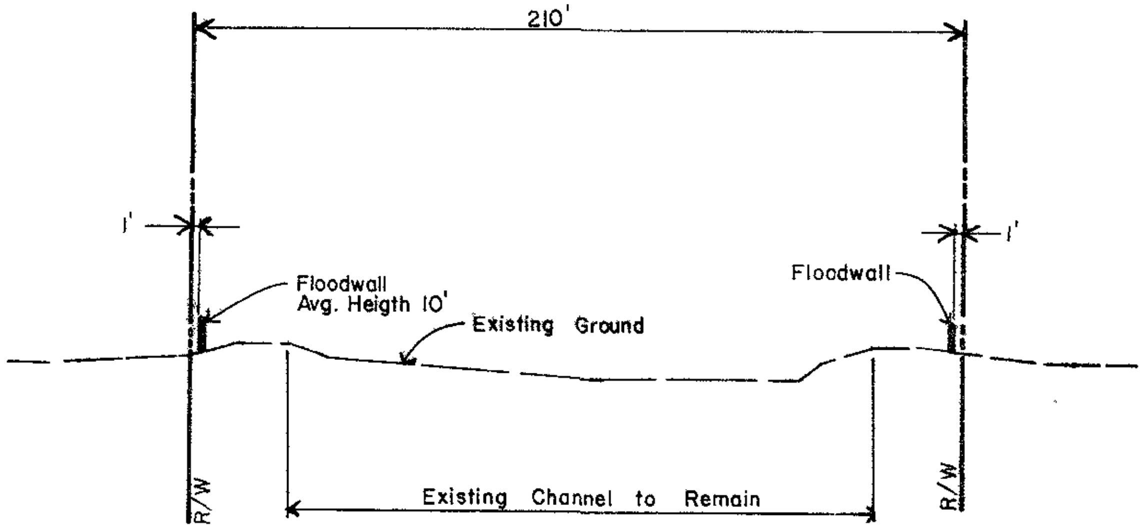
The land easterly of the channel is owned by the City of Santa Clara and is zoned for light industrial use. The property on the westerly side of the channel is currently operated as a dairy and retail outlet for dairy products. Numerous buildings and a wastewater pond are adjacent to the proposed channel right of way.

The alternatives investigated for this reach were levee raising and floodwalls. A proposal was also investigated to shift the channel easterly. This proposal was eliminated because it would cause serious environmental damage by destroying the existing wildlife habitat. Floodwalls were discarded because of their high cost; about $165 per foot of length.

Raising the levees is the proposed alternative for this reach. The levees on both sides of the channel will be raised. Figures 10 and 11 on pages 38 and 39 are typical sections of the alternatives studied and proposed. Table 4 on page 40 shows the estimated project costs for the alternatives studied for Reach IV.

On the westerly side of the channel, the dairy has many buildings and a wastewater holding pond adjacent to the channel right of way. The wastewater pond will be enlarged to replace the volume lost by the levee construction. In the area of the residences, the width of the maintenance road will be narrowed to minimize the amount of right of way taken. Some of the existing septic tanks will be modified or relocated where the levee side slopes would interfere with them.

Additional right of way is required for this reach as shown on the plans and typical section of the proposed alternative.



FLOODWALLS

(NOT PROPOSED)

NOTES:

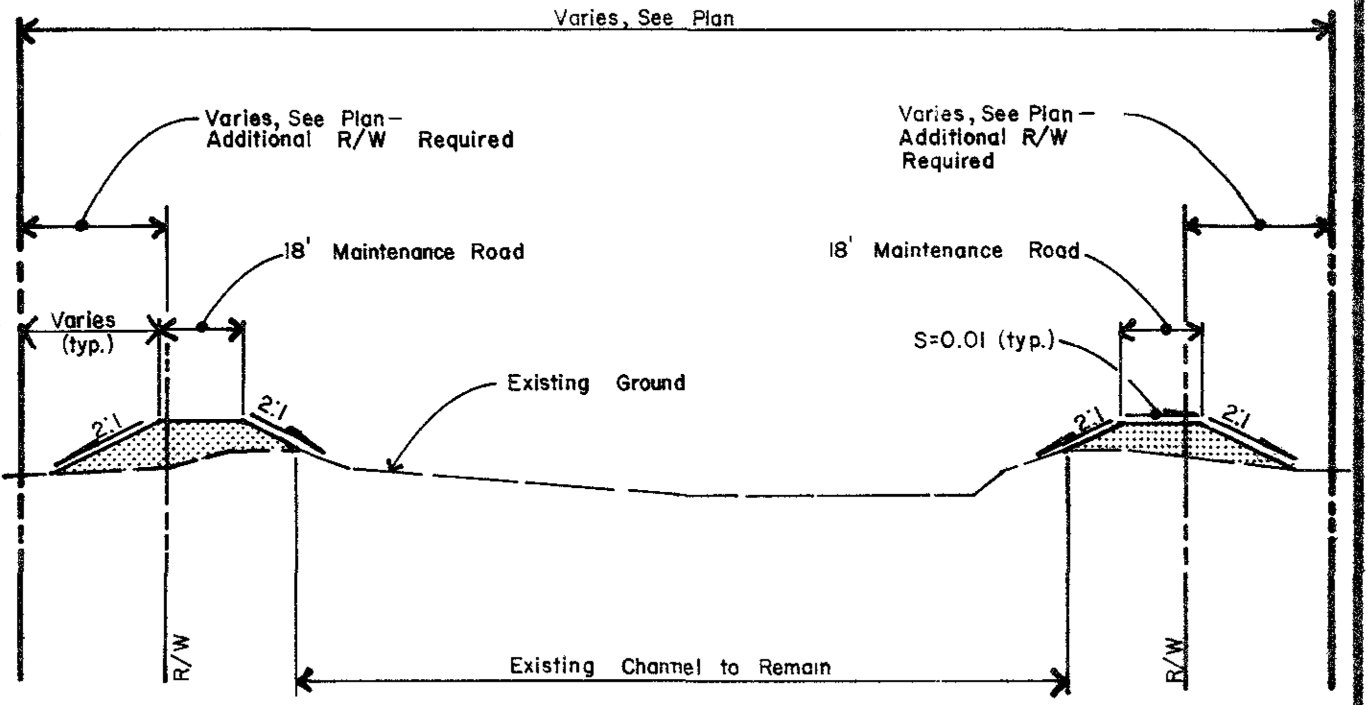
1. All Cross - Sections shown are viewed Looking in the Downstream direction.

Santa Clara Valley Water District

ALTERNATIVES
REACH IV
San Tomas Aquino Creek
From Old Mtn. View Alviso Rd. to State Route 237

Date May 1977

FIGURE NO. 10



LEVEE RAISING
(PROPOSED)

NOTES
: All Cross – Sections shown are viewed Looking in the Downstream direction

▨ FILL

Santa Clara Valley Water District

PROPOSED TYPICAL CROSS SECTION
REACH IV
San Tomas Aquino Creek
From Old Mtn. View Alviso Rd. to State Route 237
Date May 1977
FIGURE NO. 11

ALTERNATIVE COSTS

Table 4 - Reach 4

Limits	Alternative	Construction Cost	R/W Cost	Engineering & Contingences	Total Project Cost
Old Mountain View-Alviso Rd. to State Route 237	Levee construction	240,000	110,000	85,000	435,000
Old Mountain View-Alviso Rd. to State Route 237	Floodwalls	726,000	-0-	254,000	980,000

REACH V

This reach extends from State Route 237 to the confluence of San Tomas Aquino Creek with Calabazas Creek, a distance of about 2,500 feet. From State Route 237, the channel flows northerly for a distance of about 1,000 feet and then turns westerly approximately 90° and flows to the confluence with Calabazas Creek. This is the most biologically productive reach. There is abundant vegetation on the creek bank and the channel bed. The area is subject to daily tidal fluctuation which provides a very diverse wildlife habitat. Many species of birds, including shore birds, hawks, and owls, along with such animals as rodents are supported by the habitat. The property easterly and northerly of the channel is owned by the Leslie Salt Company. A portion of their property, lying easterly of the channel, is presently being used for sanitary land fill, while the remaining area is being used for salt production. The property on the opposite side of the channel is presently vacant and privately owned. The proposed use of this property is unknown.

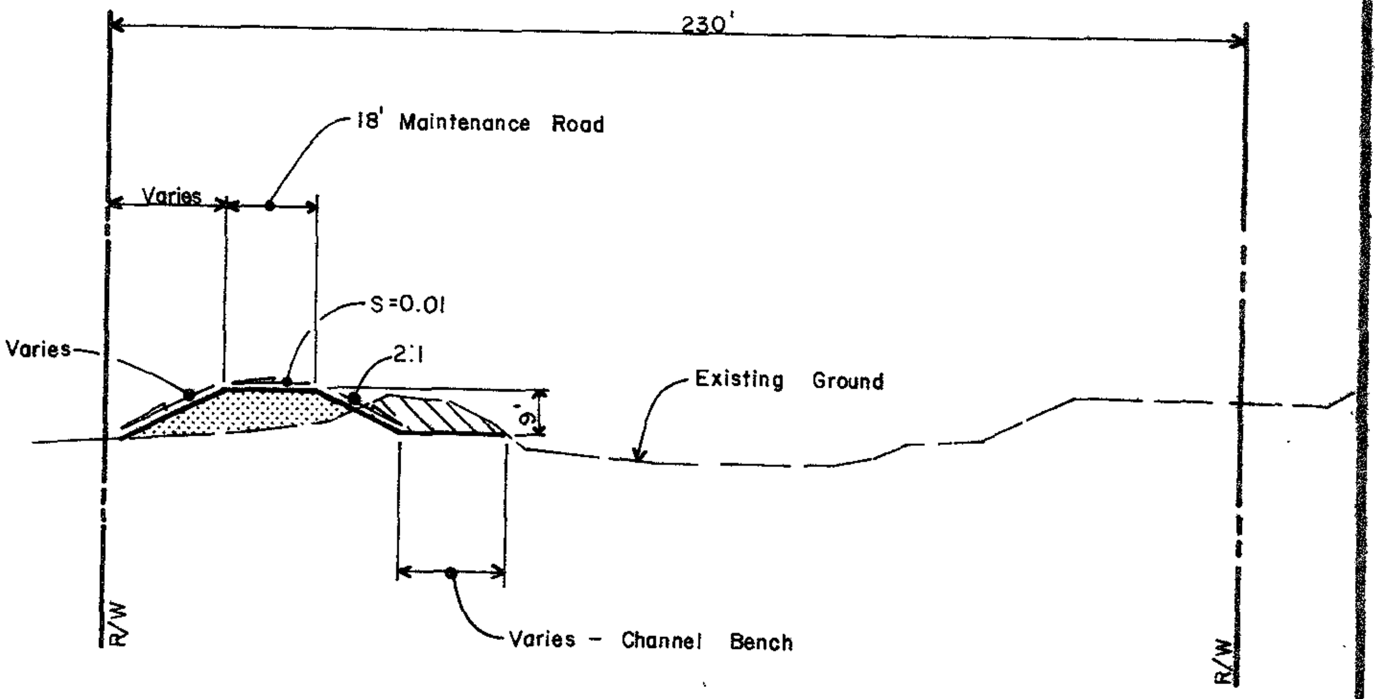
This reach is not quite adequate to convey the design flows with the exception of the bridge in the westbound lanes of State Route 237. Water will flow over the pavement on the west bound bridge and along State Route 237 for the 1% flood. However, the water will not back up and flood the surrounding land south of State Route 237. This bridge should be raised or replaced, in the future, when Caltrans widens State Route 237. Caltrans does not have this project on their 5-year schedule.

Two basic alternatives were considered for Reach V. One alternative was to purchase the property bounded by State Route 237, San Tomas Aquino Creek, and Calabazas Creek. By purchasing this property and removing the channel levees adjacent to the property, the water surface profile is lowered, which reduce flooding of the westbound bridge. The existing levee material could be used for levees in the upper reaches. The flooded area would return to a tidal marsh, which would be an environmental enhancement. By removing the levees, the westbound lanes would still have to be protected from flooding. Route 237 would have to be raised, which would be very expensive. This alternative was eliminated because the freeway would still have to be protected and because the value of the flooded property is too high.

The proposed alternative for this reach is to raise the levees adjacent to the channel. Except for a short reach adjacent to State Route 237, the levee raising is to be on one side of the channel only. As shown on the profile on the plan sheets, the existing ground at the right of way line adjacent to the Leslie Salt Company is about the same elevation or above the elevation of the proposed levees.

From State Route 237 to a point about 700 feet downstream, the flow velocities are high. Therefore, the excavation of a channel bench is proposed. This bench will lower the velocities and the use of rock lining can be avoided.

The bench will be excavated to an elevation of +5 feet, which is above the average tidal elevation and above the significant existing channel vegetation. The bench will revegetate thus producing an additional area of wildlife habitat. Figures 12 and 13 on pages 44 and 45 are typical sections of the proposed alternatives. Table 5 on page 46 shows the estimated project costs for the alternatives studied in Reach V.



EXCAVATED CHANNEL BENCH WITH LEVEE RAISING
STATE ROUTE 237 TO 700'± DOWNSTREAM
(PROPOSED)

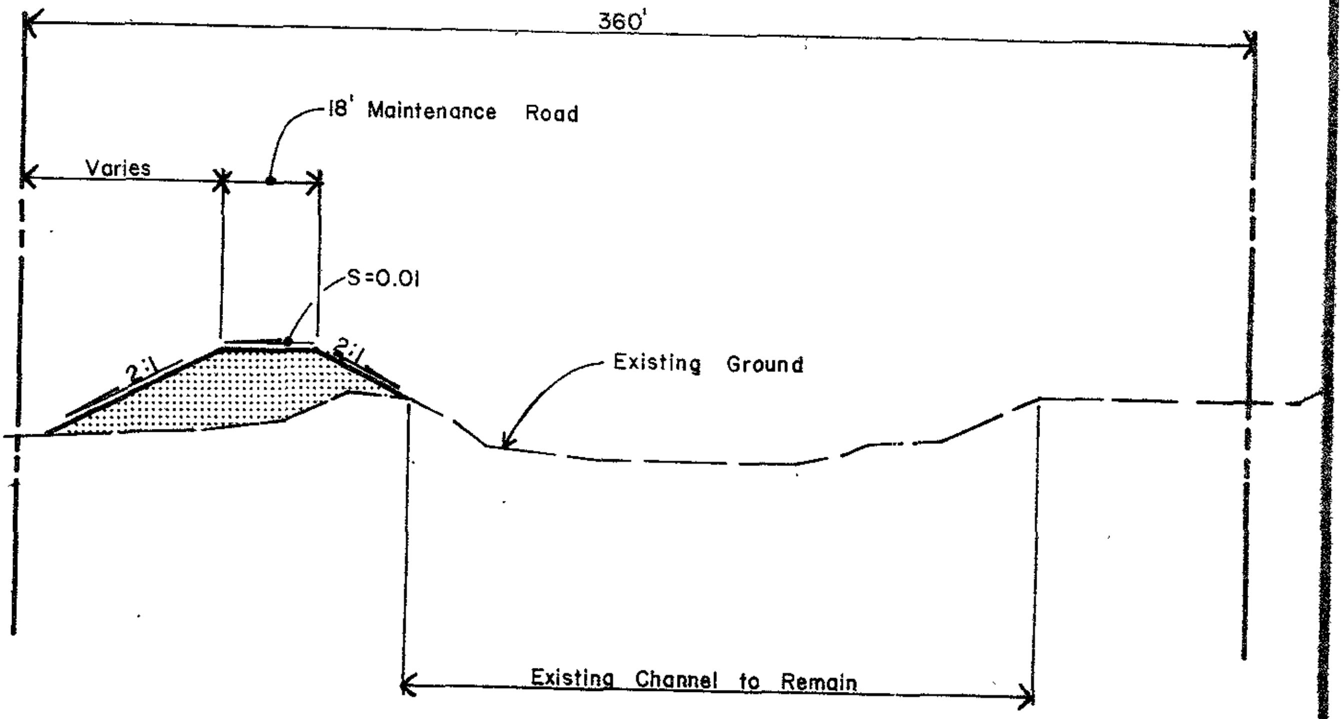
NOTES

1. All Cross - Sections shown are viewed Looking in the Downstream direction.

░ FILL
▨ EXCAVATION

Santa Clara Valley Water District

PROPOSED TYPICAL CROSS SECTION
REACH V
San Tomas Aquino Creek
STATE ROUTE 237 to CALABAZAS BASIN
DATE MAY 9
FIGURE NO. 12



LEVEE RAISING

700'± DOWNSTREAM STATE ROUTE 237 TO CALABAZAS BASIN

(PROPOSED)

NOTES:

1. All Cross-Sections shown are viewed Looking in the Downstream direction.

░ FILL

▨ EXCAVATION

Santa Clara Valley Water District

PROPOSED TYPICAL CROSS SECTION
REACH V
San Tomas Aquino Creek
STATE ROUTE 237 to CALABAZAS BASIN
DATE MAY 1977
FIGURE NO. 13

ALTERNATIVE COSTS

Table 5 - Reach 5

Limits	Alternative	Construction Cost	R/W Cost	Engineering & Contingences	Total Project Cost
State Route 237 to Calabazas Creek	Purchase of a 45 acre ± parcel northerly of State Route 237	20,000	675,000	7,000	702,000
State Route 237 to Calabazas Creek	Levee raising and excavation	90,000	-0-	30,000	120,000
State Route 237	Raising of the west bound lane bridge	600,000	-0-	-0-	600,000

The "No Project" Alternative

The "No Project" alternative would leave the floodplain unprotected from 10-year floods and all larger floods.

The "No Project" alternative would cause the Flood Disaster Protection Act of 1973 (Public Law 93-234) to be fully implemented. The City of Santa Clara has jointed the National Flood Insurance Program. Individuals and businesses located in flood prone areas are now able to purchase flood insurance at subsidized rates. If they choose not to purchase flood insurance, they will not be eligible for any type of Federally insured or Federally regulated loans for construction or purchase of property. (If you desire more information on flood insurance, call Carroll Church of the Santa Clara Valley Water District at (408) 265-2600.)

The Flood Disaster Protection Act also requires that the local jurisdiction (the City of Santa Clara) adopt land use regulations to avoid additional future flood damages.

This alternative is the least costly alternative for the District. However, there are other costs that must be considered. These include annual premium payments and the equivalent capital investment by owners or developers to obtain flood insurance, costs of emergency measures during periods of flooding, and the direct and indirect damages resulting from flooding. An additional cost of this alternative is the loss of revenue if future development is not allowed.

Based on the reasons stated above and the desires of the City of Santa Clara and the property owners, this alternative is not acceptable and is therefore not proposed.

IMPLEMENTATION OF THE PLAN

At the present time San Tomas Aquino Creek has a very high priority among the projects in the North Central Flood Control Zone. Final design and construction of this project will begin upon approval of this Engineer's Report.

The cost of the recommended project is estimated to be about $2,930,000 based on January 1978 prices. Table 6 on page 50 shows a detailed cost breakdown for the project.

Financing The Project

The project will be financed from current ad valorm taxes collected by the District in the North Central Flood Control Zone and by a contribution by the City of Santa Clara's Bayshore North Redevelopment Assessment District.

The City's contribution for this project will be $1,140,000 and will be used for the flood control work within the boundaries of the Redevelopment Project.

The Project Approval Process

A Negative Declaration was approved on February 22, 1977 by the District Board of Directors. The Board of Directors has set March 14, 1978 as the date for a public hearing on this report. At this hearing, the community, local agencies, and other interested groups and individuals will have an opportunity to present their comments and objections to the District Board of Directors, and the staff, regarding the proposed project. On the basis of comments received at this public hearing, the District Board will either approve or disapprove the project.

If the project is approved, the District will acquire the needed right of way and the staff will prepare detailed plans for the project. The project will then be advertised for contract bids for construction. The Contractor whose bid is accepted by the District will then construct the project.

PROPOSED PROJECT COSTS

Table 6

Limits	Alternative	Construction Cost	R/W Cost	Engineering & Contingencies	Total Project Cost
Bayshore Frwy to Mission College Blvd.	Trapezoidal channel with gabion lining	665,000	40,000	235,000	940,000
Mission College Blvd. to Tasman Drive	Trapezoidal channel with constructed low flow channel	505,000	20,000	175,000	700,000
Tasman Dr. to Old Mountain View-Alviso Road	No flood control work required	-	-	-	-
Old Mountain View-Alviso Rd. to State Route 237	Levee construction	240,000	110,000	85,000	435,000
State Route 237 to Calabazas Creek	Levee construction and bench excavation	90,000	-0-	30,000	120,000
State Route 237	Raise the bridge in westbound lanes	600,000	-0-	-0-	600,000
	Landscaping	100,000	-0-	35,000	135,000
	TOTALS	2,200,000	170,000	560,000	2,930,000

CONCLUSIONS AND RECOMMENDATIONS

The investigation during this planning study and a review of the history of flooding shows that a flood hazard exists in the area adjacent to San Tomas Aquino Creek from Bayshore Freeway to the junction with Calabazas Creek.

The estimated damages resulting from a 1% flood flow would be about $1,300,000 at the present time and could be $3,000,000 if the area is developed in accordance with the master plan of the City of Santa Clara.

The investigation further revealed that, except for the reach of channel from Bayshore Freeway to Agnew Road and a portion of the channel downstream of State Route 237, the erosion potential is minimal.

The environmental assessment of the proposed project is that it does not have a significant adverse impact. The Negative Declaration for the project is attached to this report as Appendix B.

Based on these findings it is recommended that the proposed project be approved and that construction of the project be started as soon as possible. It is also recommended that landscaping be installed immediately after project construction.

APPENDIX A

PERSONS TO CONTACT FOR MORE INFORMATION

About this Report

G. Thomas Dean
Project Engineer
Santa Clara Valley Water District
265-2600, extension 313

About Flood Insurance

Carroll Church
Santa Clara Valley Water District
265-2600, extension 353

About Environmental Considerations

Dr. Bernard Goldner
Santa Clara Valley Water District
265-2600, extension 350

About Creek Maintenance

Donald Erling
Santa Clara Valley Water District
265-2600, extension 360

About Right of Way Acquisitions

Donald Lawrie
Santa Clara Valley Water District
265-2600, extension 261

APPENDIX B

NEGATIVE DECLARATION

Project: Proposed Flood Control Measures on San Tomas Aquino Creek, Project No. 2019, North Central Flood Control Zone.

Location: The reach of San Tomas Aquino Creek Between Bayshore Freeway and Calabazas Retarding Basin in the Cities of Santa Clara, and San Jose.

Purpose: The proposed project, in conjunction with other flood control work, will protect the community within the floodplain of this reach of the creek from the one percent flood. Surrounding major land use includes a townhouse subdivision and industrial development on the easterly bank and Marriott's Great America Theme Park on the western side of the creek. A large subdivision is being planned opposite Great America Theme Park just northerly of Agnew Road.

Finding: Based on an Initial Study (attached) of the project pursuant to Section 15080 of the State EIR Guidelines, staff has determined that the proposed project will not have a substantial adverse impact on the environment.

Basis of Finding: Most of the adverse impacts would result from construction activities and are therefore temporary. These include excessive noise levels, dust and exhaust emissions, inconvenience to traffic, and temporarily increased soil erosion from disrupted areas. Wildlife disturbed during construction are expected to repopulate the area; however, some species will be destroyed either physically or, upon relocation to nearby habitats, fail to compete successfully.

The project is designed to avoid filling or excavating the existing creek bed in the productive tidal marsh reaches downstream of Old Mountain View-Alviso Road so that any impacts on the riparian habitat resulting from construction adjacent to the creek bottom would be temporary. The landscaping program, over the long term, will enhance the quality of habitat and wildlife in the creek.

Providing flood protection would remove one of several constraints to development within the floodplain; inadequate local drainage, streets and local roads, and urban services are also important factors in determining development. The City of Santa Clara is remedying these problems, including flood control measures, by means of financing the Bayshore North Redevelopment Project through a tax allocation bond sale.

Mitigation measures included in the project are described in the attached Initial Study.

Biological Setting (October, 1976)

Bayshore Freeway to Mission College Boulevard

This reach of creek flows through a trapezoidal excavated earth channel.

The vegetation is largely restricted to the channel bottom and consists of cattails, curly dock, water smartweed, sedges, spiny cocklebur, pig weed, yellow sweet clover, milk thistle, wild oats, red willow, yellow willow and other miscellaneous herbs and grasses. No permanent habitat exists here, as evidenced by the lack of mature vegetation; very few plants are growing on the side slopes.

The creek area does support some wildlife including Brewer's blackbirds, red-winged blackbirds, ground squirrels and several snowy egrets. There are numerous fingerling fish in the creek have apparently attracted the egrets.

Mission College Boulevard to Agnew Road

The excavated earth channel continues through this reach and downstream to the end of the project.

The channel appears to have been recently cleared because although the plants are similar to the upstream reach, the coverage is more sparse. The side slopes are nearly denuded. Very few animals were present, but those observed included ground squirrels, Brewer's blackbirds and killdeer.

Agnew Road to Tasman Avenue

This reach of creek passes Marriott's Great America Theme Park to the east. The channel is sparsely vegetated, a continuation of the upstream reaches, with a similar species composition for the upstream half. Then there is a gradual change in plant communities from freshwater to brackish water marsh resulting from tidal influence. The brackish marsh area is indicated by California bulrushes.

Channel side slopes are more or less unvegetated, with the plant community restricted to the channel toes. Only a few sparrows and Brewer's blackbirds were observed in this reach.

Tasman Drive to Old Mountain View-Alviso Road

California bulrushes dominate this reach to the virtual exclusion of other plants. The area appears more biologically productive. It is apparently more attractive to wildlife, particularly red-winged blackbirds, than the upstream reaches.

The channel side slopes remain essentially unvegetated; the existing plants are restricted to the channel toes.

Old Mountain View-Alviso Road to Highway 237

The brackish marsh continues through this reach, slowly changing to include a few strictly salt-marsh species, most notably marsh grindelia. A few cattails and sedges still persist, indicating the presence of some fresh water. A large triangular bulrush marsh is established along the east bank of the channel.

A large flock of red-winged blackbirds, numerous sparrows and likely other birds as well use this marsh area for feeding, roosting and possibly nesting.

Highway 237 to Calabazas Retarding Basin

This reach is the most biological productive within the project limits. The vegetation present indicates the area is still in transition from brackish to salt marsh. The species are largely salt-marsh plants, however, and include California bulrush, pickleweed, cordgrass, marsh grindelia, frankenia and numerous other weeds, herbs and grasses.

The plant community supports considerable wildlife, representing many species. Those observed include red-winged blackbirds, coots, mallards, cinnamon teals, killdeer, and numerous shore birds at low tide. The channel banks support a large ground squirrel population which in turn supports predators such as red-tailed hawks, marsh hawks and burrowing owls.

ENVIRONMENTAL IMPACT ASSESSMENT CHECKLIST

Explanations of all "Yes" and "Maybe" answers are required on attached sheets. If impact occurs during construction or is temporary, indicate with a "C" or "T" under Yes or Maybe.

	Yes	Maybe	No
1. Geology and Soils. Will the project result in:			
a. An increased hazard to the public resulting from geologic features of the site (landslide-prone areas, faults, slumping, etc.)?			X
b. Serious disruptions, displacements, compaction, or impervious covering of the soil?	X		
c. Introduction of toxic materials in the soil or reduction of soil fertility?			X
d. Significant change in topography or ground surface relief features?	X		
e. The destruction, covering or modification of any unique geologic or physical features?			X
f. Any substantial increase in wind or water erosion of soils, either on or off the site?		T	
g. Changes in siltation, sediment transport, deposition or erosion which may modify a river, stream, or other body of water?			X
2. Air. Will the project result in:			
a. Generation of air emissions (such as dust) that will seriously deteriorate air quality standards (either locally or regionally)?	C		
b. The creation of objectionable odors?			X
c. Major alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?			X

	Yes	Maybe	No
3. Water. Will the project result in:			
a. Changes in currents, or the course or direction of water movements?			X
b. Changes in infiltration rates, sedimentation, drainage patterns, or the rate and amount of surface water runoff?	T		
c. Alterations in the course or flow of floodwaters?	X		
d. An increase in downstream flood potential that might cause property damage?			X
e. Change in the amount of surface water in any body of water?			X
f. Contamination or any detrimental effect on existing water quality or quantities of either surface or sub-surface supplies?	T		
g. Change in the quantity of ground-waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?			X
h. Reduction in the amount of water otherwise available for public water supplies?			X
4. Noise. Will the project increase existing noise levels during construction or operations to the extent that existing or future residents would be annoyed?	C		
5. Plant Life. Will the project result in:			
a. Change in the diversity of species, or numbers of any species of plants (including trees, shrubs, grasses, microflora, and aquatic plants)?	T		
b. Reduction of the numbers of any unique, rare or endangered species of plants?			X
c. Introduction of new plant species into an area, or a barrier to the normal replenishment of existing species?	X		

	Yes	Maybe	No
6. Animal Life. Will the project result in:			
a. Changes in the diversity of species, or numbers of any species of animals (birds, land animals, including reptiles, fish and shellfish, benthic organisms, insects or microfauna)?	T		
b. Loss or disturbance of a nesting area for resident or migrating birds?	T		
c. Reduction of the numbers of any unique, rare or endangered species of animal?			X
d. Introduction of new species of animal into an area, or result in a barrier to the migration or movement of animals (or fish)?			X
e. Deterioration of existing fish or wildlife habitat?	T		
7. Land Use/Community Plans and Values. Will the project result in:			
a. Alteration or nonconformance with regional, federal, state or local land use plans and policies of the surrounding area?			X
b. Conflict or inconsistency with adopted policies, plans and goals of the community where the project is located?			X
c. Deterioration of the integrity or quality of the surrounding neighborhood? Loss of privacy or security to residents over the long term?		X	
d. Generation of a substantial public controversy resulting from environmental concerns?			X

	Yes	Maybe	No
8. Economic. Will the project:			
a. Foster economic or population growth, either directly or indirectly, in the surrounding area (particularly if faster than planned for)?		X	
b. Remove a major constraint or obstacle to growth?	X		
c. Decrease employment in the community?			X
d. Reduce acreage or yield of an agricultural crop?	X		
9. Population. Will the location, distribution, character, or density of the surrounding human population be altered by the project?			X
10. Housing. Will the project adversely affect existing housing or result in the relocation of existing housing?			X
11. Transportation/Circulation. Will the project result in:			
a. An adverse impact upon existing transportation systems?			X
b. Reduction in existing parking facilities, or create demand for new parking?			X
c. Alterations to present patterns of circulation or movement of people and/or goods?	T		
d. Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?			X
12. Public Services. Will the project result in a need for new or altered governmental services in any of the following areas:			
a. Fire or police protection?			X
b. Schools?			X
c. Parks or other recreational facilities?			X

	Yes	Maybe	No
d. Maintenance of public facilities (streets, highways, public transit, etc.)?			X
e. Flood Protection?			X
f. Other governmental services?			X
13. Utilities. Will the project result in a need for new systems, or alterations to the following utilities:			
a. Power or natural gas?			X
b. Communications systems?			X
c. Water?		X	
d. Sewers or septic tanks?			X
e. Storm water drainage?	X		
f. Solid waste disposal?			X
14. Energy. Will the project result in:			
a. Use of substantial amounts of fuel or energy?			X
b. Substantial demand upon existing sources of energy, or require the development of new sources of energy?			X
15. Public and Environmental Health. Will the project result in:			
a. Creation of any known human health hazard or potential health hazard (excluding mental health but including physical injury)?			X
b. Involve the application, use, or disposal of toxic or hazardous materials?			X
16. Aesthetics. Will the project result in the obstruction or elimination or any scenic vista or view open to the public, or will the project result in the creation of an aesthetically offensive site or structure presently or potentially open to public view?		T	

	Yes	Maybe	No
17. Recreation. Will the project result in an impact upon the quality or quantity of existing recreational opportunities (such as fishing, boating, hiking, horseback riding, bicycling)?			X
18. Archeological/Historical. Will the project result in an alteration of a significant known archeological or historical site, structure, object or building? Is the project in a known archeologically sensitive area?			X
19. Natural Resources. Will the project substantially increase the consumption of an non-renewable natural resource such as minerals, precious metals, prime agricultural land, natural gas, oil, etc.?			X
20. Mandatory Findings of Significance.			
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X
b. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.)			X
c. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.)			X

	Yes	Maybe	No
d. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X

DETERMINATION

On the basis of this Initial Study:

☐ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project.

☐ I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Dr. Bernard H. Goldner
Prepared by
Environmental Specialist

Title
Winthrop A. Stiles, III
Assistant Environmental
Specialist

Date: February 22, 1977

Discussion of Environmental Evaluation

1.b. Floodplain areas adjacent to the existing channel will be excavated and fill material will be compacted to construct levees.

1.d. Construction of higher levees along the creek will enlarge a prominent feature of the otherwise flat terrain.

1.f. Temporarily increased water and wind erosion of cut slopes and excavated areas will occur until these areas vegetate or stabilize. If high flows occur prior to stabilization, erosion will be more severe. Over the long term, sediment loads will decrease as velocities will be lower and flow patterns less turbulent in this reach.

2.a. Local air quality is likely to deteriorate during construction. Dust and exhaust emissions will impact residences adjacent to the creek.

3.b. and f. Degradation of the water quality in this reach of the creek is probable immediately following construction due to increased turbidity caused by increased sediment loads. (See 1.f. above).

3.c. Floodwaters of equal or greater frequency than the one percent flood from San Tomas Aquino Creek will no longer inundate adjacent lands upon completion of the project. Flooding will still occur from Calabazas Creek until flood control measures planned for this creek are implemented.

4. During construction, high noise levels are likely to disturb nearby residents.

5.a. Vegetation will be lost in excavated areas and covered by the placement of fill for levees. However, disturbed areas are expected to revegetate both naturally and as a result of the District landscaping program. Vegetation in the existing streambed will not be removed downstream of Old Mountain View-Alviso Road, the most productive tidal marsh reach.

5.c. Landscaping will introduce plant materials not present in the creek. These plants will be largely natives and selected for compatibility with the surrounding environment. The wider channel resulting from the project will provide a larger area for the support of riparian vegetation.

6.a., b. and e. Disturbance and noise during construction will cause birds and wildlife to leave the area. Immobile or slow-moving species will be destroyed (e.g., invertebrates) while mobile species may not survive if nearby areas cannot support greater populations. Upon completion of the project and reestablishment of vegetation, the creek would repopulate with wildlife.

7.c. Construction of higher levees along the east bank of the creek downstream of Agnew Road has the potential of reducing the privacy of creekside homes being planned in this area.

8.a. and b. The area to be protected from flooding lies partly within the City of Santa Clara's Bayshore North Redevelopment Project. The redevelopment plan, when fully implemented, will allow the City to develop the project area according to the type of land uses designated in the 1976 General Plan. The redevelopment area is considered a blighted area due to lack of streets, local roads, urban services, local drainage and flood control. Several large vacant parcels north of Bayshore Freeway are planned for industrial uses. Providing flood control, therefore, will remove but one constraint to development.

In the absence of the flood control project, development of these areas could still occur at this time by such means as padding the sites or providing levees or floodwalls constructed to District standards and funded entirely by private financing and/or by City of Santa Clara revenue. Thus, in this case, the burden of financing would be shifted from the District to the private sector or to a municipality.

Other lands to be protected from flooding are fully developed, including Marriott's Great America Theme Park and a residential area north of Agnew Road. Also, the Edelweiss Dairy, just north of Old Mountain View-Alviso Road will be protected.

Documents describing the impacts of future development in the City of Santa Clara are as follows:

1) Environmental Impact Report - Redevelopment Plan for the Bayshore North Project, City of Santa Clara, 1973.

2) Environmental Impact Statement for Frontier Worlds Plan, Wilsey and Hamm, 1973.

3) 1976 General Plan, City of Santa Clara.

8.d. About 20-30 pear trees will be removed from a large orchard just north of Bayshore Freeway to provide right of way for a levee. It is probable that the orchard will eventually be lost as the land is planned for industrial uses.

11.c. The westbound lane of the State Highway 237 will be raised causing temporary inconvenience to traffic.

13.c. Relocation of manholes of Hetch-Hetchy pipeline may be necessary.

13.e. Some existing storm drain outlets will be reconstructed.

16. The excavated areas and levees will be bare in appearance until vegetation is reestablished. Over the long term, the appearance of the creek will be enhanced because of the landscaping program.

18. The creek is a man-made, realigned channel and the adjacent area within the project right of way has been severely disturbed by prior construction activities. It is highly unlikely that surface reconnaissance would discover archaeological sites.

Mitigation Measures

1. The project has been designed to avoid excavation of the existing stream bottom downstream of Old Mountain View-Alviso Road to minimize impacts on the riparian habitat which is particularly productive in this reach which is under tidal influence. Past maintenance practices have prevented establishment of significant vegetation in the reach upstream of Tasman Drive; the new channel will be constructed sufficiently large so that it may be possible in the future to remove less vegetation in the low-flow channel.

2. As a result of the planned landscaping program, the creek will eventually support a more diverse and productive habitat than now exists. Plant materials will be largely natives selected for their value to wildlife.

3. Construction would not occur in June or July to avoid disturbing nesting birds.

4. The District and the developers of the subdivision being planned downstream of Agnew Road will coordinate plans to minimize or eliminate any potential loss of privacy to creekside homes resulting from the proposed levee-raising in this reach. The higher levee will provide some reduction in noise emanating from Marriott's Great America Theme Park across the channel.

5. Construction-related impacts will be mitigated to the extent possible by imposing strict conditions on the contractor performing the work regarding adherence to local noise standards, dust suppression, traffic control, avoidance of water pollution, site maintenance and cleanup procedures, vegetation removal, and public safety.

APPENDIX C

THE ONE PERCENT FLOOD

The one percent flood is that flow of water from a drainage area that has a one percent chance (probability of 0.01) of occurring in any given year. It is equivalent to the so-called 100-year flood, but it should not be thought of as an event that occurs regularly every 100th year. Instead, it is the flood flow event that would be equaled or exceeded about 100 times in 10,000 years. It is also possible that two repetitions of this flood flow could occur in a single year, or that a single event may not occur even once in 200 years.

The "one percent flood" is the preferred description of the design flood. However, the term "100-year flood" is equivalent. Unfortunately, this latter term often leads to the misconception that the design flood occurs only every 100th year.

Another terminology problem is the relation of the one percent storm and the one percent flood. The storm magnitude relates to flood magnitude through a complex set of parameters such as antecedent rainfall conditions, drainage basin shape, length, slope, orientation, and others. Therefore, a one percent storm will not necessarily produce a one percent flood. The one percent flood should not be confused with nor should it be referred to as the one percent storm flood.

The one percent flood has a small risk of occurrence in a given year, but this risk is accumulative. When compared with the 30-year life of the average home loan, for example, the chance that it will occur is quite large. During the 30-year loan period, the chance that a one percent flood will occur, or be exceeded, approaches 30 percent.

The magnitude of the one percent flood must be calculated using statistical hydrological (stochastic) methods. Since it is the desire of the District to provide equal protection from flooding to all residents, a uniform method of determining design flood flows is required; one that is regional in scope and one that minimizes the chance of providing unequal protection from one area to another. This objective is reached through a regional peak flood frequency analysis that uses the best available hydrologic data from stream systems in and adjacent to the District. The regional process utilized by the District was developed after considerable effort and has been reviewed and approved by the academic and professional community.

The research on the statistical measurement of flood flows and frequencies has shown that the larger magnitude floods that occur at relatively infrequent intervals, such as the one percent flood, are products of extremely heavy rainfalls, either exceptionally high intesity or of long duration. With exceptionally high-intensity rainfall, so much rain falls in a short period of time that no matter what the ground cover is - soil, pavement, grass, trees, or buildings - the water cannot be stored or soaked up, and it runs off in a flood. With long-duration rainfall, a lot of rain falls, but it comes over a long period of time. Bare soil, grassland, forests, landscaping, house roofs, and pavement become fully saturated, and flooding occurs when no more water can be absorbed, stored, or evaporated. Thus, for large floods, the type of development or degree of urbanization that exists in the total watershed has essentially no effect on the magnitude of the peak flood flow that is generated.

However, the situation is different for the small magnitude floods which occur at frequent intervals. In these, the rainfall intensity is less or of shorter duration. The absorption, holding, or storage characteristics of the land are much more important. With much less water present, soil, grass, and forests tend to soak up and hold back the rain that falls, while pavement and house roofs let a large percentage run off.

Therefore, when grassland is converted to pavement, the amount of water that runs off is much greater for the small amounts of rainfall. The magnitude of the small, more frequent type of flood flow is increased by urbanization.

In discussing flood flows and urbanization, there is one additional factor that should be mentioned. This is over-bank storage in floodplain areas. Where urbanization occurs in the floodplain and the stream is channelized, the storage of over-bank floodwaters is reduced. This results in greater downstream flood flows. This increase in flood flows occurs for any magnitude or frequency of flooding that would have resulted in channel overflow and storage of waters in the floodplain.

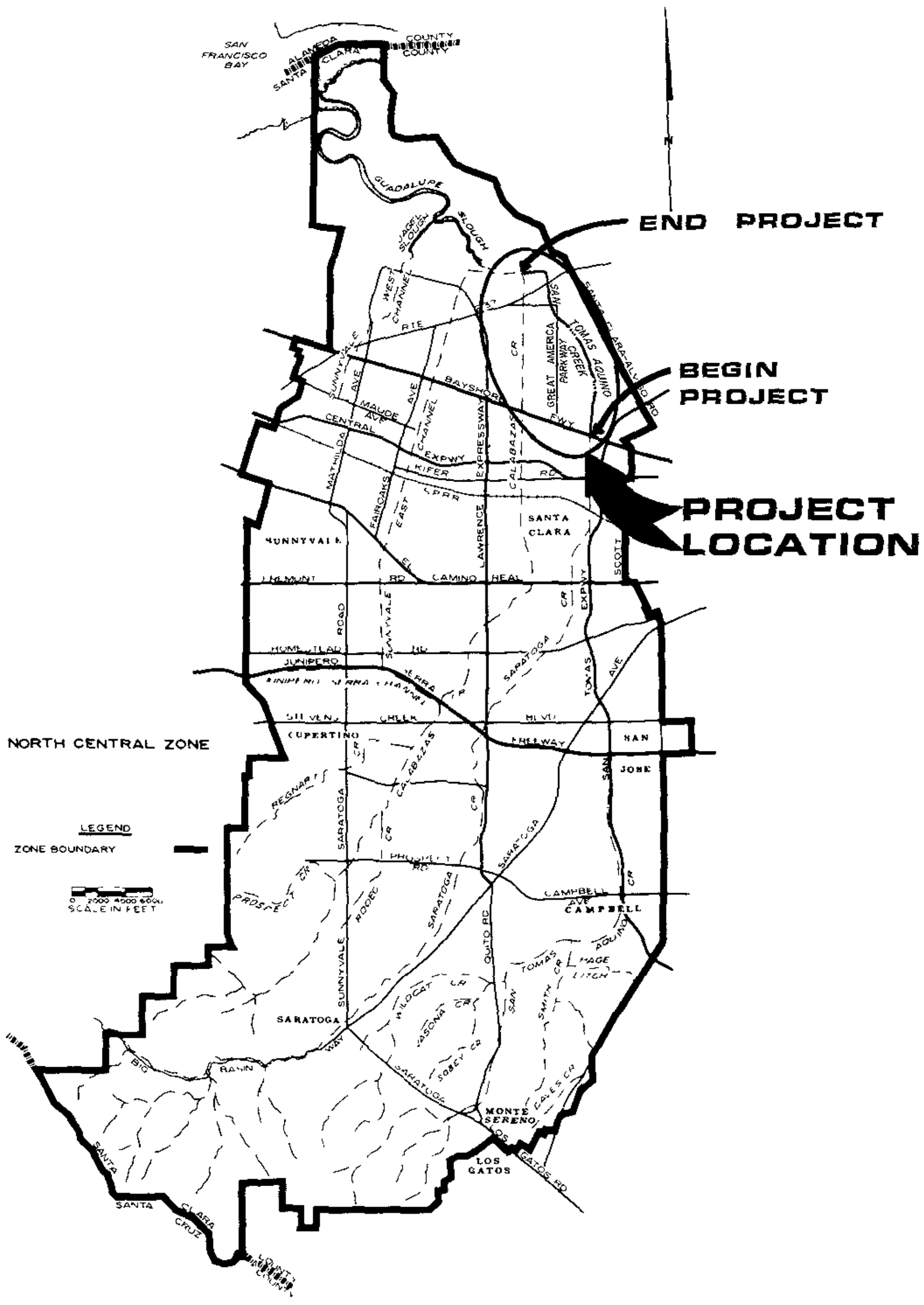
Lloyd C. Fowler
October 21, 1974

APPENDIX D

GLOSSARY OF TERMS

cfs or Cubic Feet Per Second	A rate of flow that would fill a container of 1 cubic foot size, that is about 7½ gallons, in one second.
Design Flow	The magnitude of streamflow that is used in design of channel improvements and structures across the channels.
Drainage Area	Area that drains into a body of water such as a stream or a reservoir.
Floodwall	A wall constructed adjoining a channel to prevent flooding of the surrounding areas.
Freeboard	Vertical distance between the top of an embankment adjoining a channel and the water level in the channel. It is a factor of safety designed into a project.
Gabions	Wire baskets filled with graded rocks and gravel. These baskets are used as erosion protection works on channels.
Low Flow Channel	That section of stream which carries the more frequent, periodic streamflows.
Erosion	Loss of soil from bank or bed of a creek, causing undercutting of banks; ultimate result could be bank failure.
Flood	The temporary inundation of lands normally dry; any waters escaping from a creek or river.
Flood Control Zone	A zone established by the Santa Clara Valley Water District for the purpose of limiting use of tax funds available from a certain area (zone) for the improvements and services in tha particular area only. There are five flood control zones in Sant Clara County.

Negative Declaration	A statement by an environmental specialist stating that a proposed project will not have any significant adverse environmental impacts. This statement is prepared as required by California Environmental Quality Act.
One Percent Flow	A flow which has a one percent chance of being equaled or exceeded in any year. It is also popularly known as the "100-Year Flow" (See Appendix C).
Reach	One continuous stretch or section of a river or stream.
Subsidence	Loss of ground elevation due to compaction of underground soil layers, primarily caused by overpumpage of groundwater.
Velocity	Speed with which water would flow in a channel. It depends on sever factors, such as slope, smoothness and uniformity of channel, area of flow, and wetted perimeter.
Watershed	Area that drains into a body of water such as a stream or a reservoir.



MAP AND GENERAL PLAN

FOR

SAN TOMAS AQUINO CREEK

FROM

BAYSHORE FREEWAY TO CALABAZAS RETARDING BASIN

Santa Clara Valley Water District

NORTH CENTRAL FLOOD CONTROL ZONE

PROJECT NO. 2019

INDEX

SHEET NO.	DESCRIPTION
1	MAP & TITLE PAGE
2	INDEX MAP & LEGEND
3-16	PLAN & PROFILE

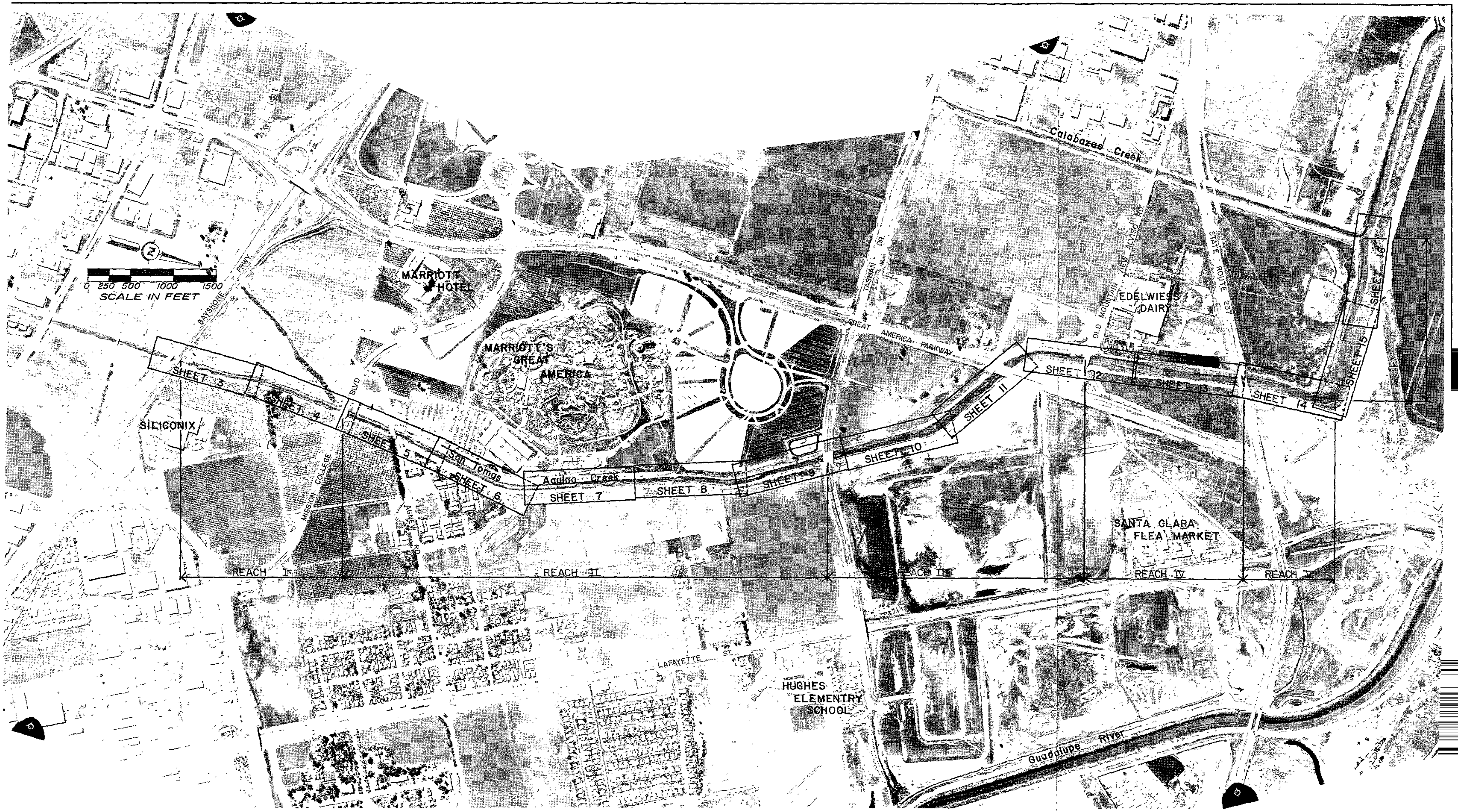
REDUCED PLAN
USE SCALE BELOW
0 1 2 3
3 INCHES ON ORIGINAL PLAN

PROJECT APPROVAL:

DESIGN AND CONSTRUCTION MANAGER

Lloyd C Fowler
CHIEF ENGINEER

DATE:



REV	DESCRIPTION	DATE	APPR
	REDUCED PLAN USE SCALE BELOW 0 1 2 3 3 INCHES ON ORIGINAL PLAN		

REFERENCE INFORMATION AND NOTES

1. Entire area with the exception of channel bottom to be hydroseeded with a grass and or ground cover mixture as part of construction.

AIR PHOTO ... INC

DATE

DESIGN
G.T.D.

DRAWN
R. Soto

CHECKED

Santa Clara Valley Water District

ENGINEERING CERTIFICATION

PROJECT ENGINEER R.C.E. No. 22900
Bruce Wilson

ENGINEERING APPROVAL

HEAD DESIGN BRANCH R.C.E. NO. 14755

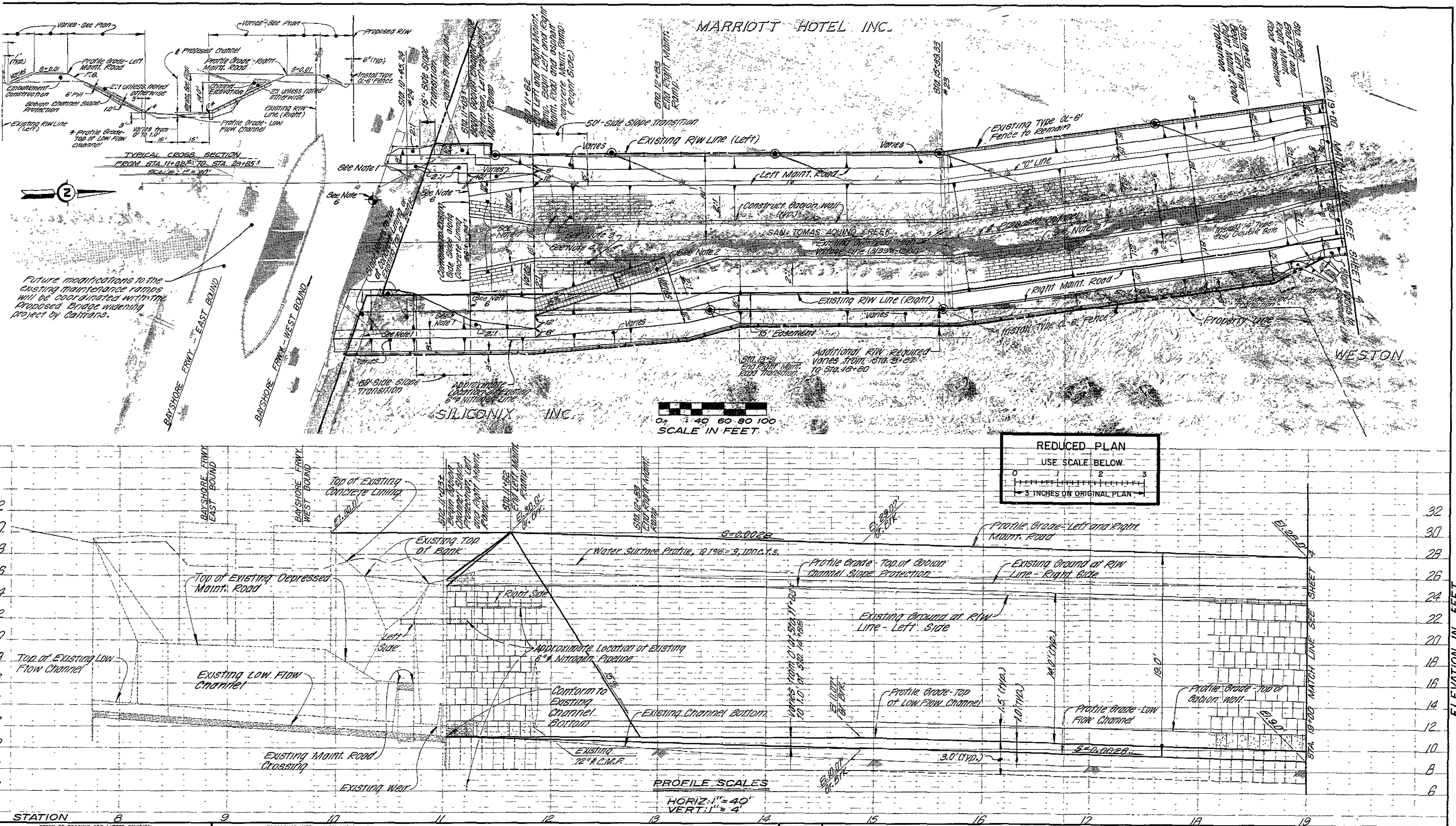
SAN TOMAS AQUINO CREEK

Bayshore Freeway To Holding Basin

INDEX MAP

SCALE
1" = 500'

SHEET
2


Varies - See Plan
Varies - See Plan
Proposed R/W
℄ Proposed Channel
Profile Grade - Left Maint. Road
Profile Grade - Right Maint. Road
F.B.
S=0.01
S=0.01
1' (typ.)
Varies
6" (typ.)
Install Type CL-6' Fence
Embankment Construction
6' Fill
2:1 unless noted otherwise
2:1 unless noted otherwise
Channel Excavation
Varies See Plan
14.0'
Gabion Channel Slope Protection
1.0'
3'
3'
Existing R/W Line (Left)
Existing R/W Line (Right)
* Profile Grade - Top of Low Flow Channel
Varies from 0' to 1.0'
15'
15'
Profile Grade - Low Flow Channel
TYPICAL CROSS SECTION
FROM STA. 11+82± TO STA. 28+65±
SCALE: 1" = 20'
Z
MARRIOTT HOTEL INC.
SILICONIX INC.
WESTON
Sta. 10+45.24 #24
15' Side Slope Transition
Varies to R/W Line
Sta. 11+63± Begin Gabion Channel Side Slope Protection, Left and Right Maint. Ramp
Sta. 11+62 End Left and Right Maint. Ramp, Begin Left and Right Maint. Road and asphalt concrete Maint. Ramp (Right Side)
Sta. 12+83 End Right Maint. Ramp
Sta. 15+39.33 #23
Sta. 18+30 Begin Left and Right Maint. Road Transition
Sta. 18+80 End Left and Right Maint. Road Transition
50'-Side Slope Transition
Existing R/W Line (Left)
Existing Type CL-6' Fence to Remain
"0" Line
Left Maint. Road
Construct Gabion Wall (typ.)
SAN TOMAS AQUINO CREEK
℄ Proposed Channel
Existing Overhead High Voltage Line (2)
See Note 1
See Note 6
See Note 6
See Note 2
See Note 3
See Note 3
See Note 4
See Note 5
See Note 7
See Note 1
Varies
Install 14' Type CL-6' Double Gate
Right Maint. Road
Existing R/W Line (Right)
15' Easement
Install Type CL-6' Fence
Property Line
Sta. 13+91 End Right Maint. Road Transition
Additional R/W Required varies from Sta. 9+87 to Sta. 18+80
60'-Side Slope Transition
Approximate Location of Existing 6" ø Nitrogen Line
Future modifications to the existing maintenance ramps will be coordinated with the proposed bridge widening project by Caltrans.
BAYSHORE FRWY - EAST BOUND
BAYSHORE FRWY - WEST BOUND
MATCH LINE SEE SHEET 4
0 20 40 60 80 100
SCALE IN FEET
REDUCED PLAN
USE SCALE BELOW
0 1 2 3
3 INCHES ON ORIGINAL PLAN
BAYSHORE FRWY EAST BOUND
BAYSHORE FRWY WEST BOUND
Top of Existing Concrete Lining
El. 30.0'
Sta. 11+63± Begin Gabion Channel Slope Protection, Left and Right Maint. Ramp
Sta. 11+82 End Left Maint. Ramp
El. 30.0' Of. Bk.
Sta. 12+83 End Right Maint. Ramp
El. 29.0' Of. Bk.
El. 28.0'
S=0.0029
Profile Grade - Left and Right Maint. Road
Existing Top of Bank
Water Surface Profile, Q1%=3,100 c.f.s.
Profile Grade - Top of Gabion Channel Slope Protection
Existing Ground at R/W Line - Right Side
Top of Existing Depressed Maint. Road
Right Side
Left Side
Existing Ground at R/W Line - Left Side
Approximate Location of Existing 6" ø Nitrogen Pipeline
Top of Existing Low Flow Channel
Existing Low Flow Channel
Conform to Existing Channel Bottom
15%
Existing Channel Bottom
Varies from 0' at Sta. 11+63± to 1.0' at Sta. 14+85
El. 11.0' Of. Bk.
Profile Grade - Top of Low Flow Channel
1.5' (typ.)
1.0' (typ.)
14.0' (typ.)
19.0'
Profile Grade - Low Flow Channel
Profile Grade - Top of Gabion Wall
El. 9.0'
S=0.0028
3.0' (typ.)
Existing 72" ø C.M.P.
Existing Maint. Road Crossing
Existing Weir
El. 10.0' Of. Bk.
STA. 19+00 MATCH LINE SEE SHEET 4
PROFILE SCALES
HORIZ: 1" = 40'
VERT: 1" = 4'
32
30
28
26
24
22
20
18
16
14
12
10
8
6
ELEVATION IN FEET
STATION
8
9
10
11
12
13
14
15
16
17
18
19

REFER TO TRACING FOR LATEST REVISION		
DESCRIPTION	SUB	APPR

REFERENCE INFORMATION AND NOTES

DATE OF PHOTOGRAPHY 2-11-77

1. Existing Type CL-6' Fence to be Relocated.
2. Asphalt Concrete Pavement to be Installed in Hatched Area.
3. After installation of Gabion Slope Protection the surface shall be covered with 6" of earth material.
4. Existing 72" ø C.M.P. to conform to Proposed Side Slope.
5. Basis of Elevation T.B.M. S.T-F Found "O" cut on North west Corner of Bridge. Elev. 31.39'.
6. Conform to Existing Ground El.
7. Existing Sacked P.C.C. Rip-Rap to be removed.

DATE	
DESIGN	B.T.O., R.Soto
DRAWN	R.Soto
CHECKED	

Santa Clara Valley Water District

ENGINEERING CERTIFICATION

PROJECT ENGINEER R.C.E. NO. 22948

Bruce Wilson
DIVISION ENGINEER R.C.E. NO. 15051

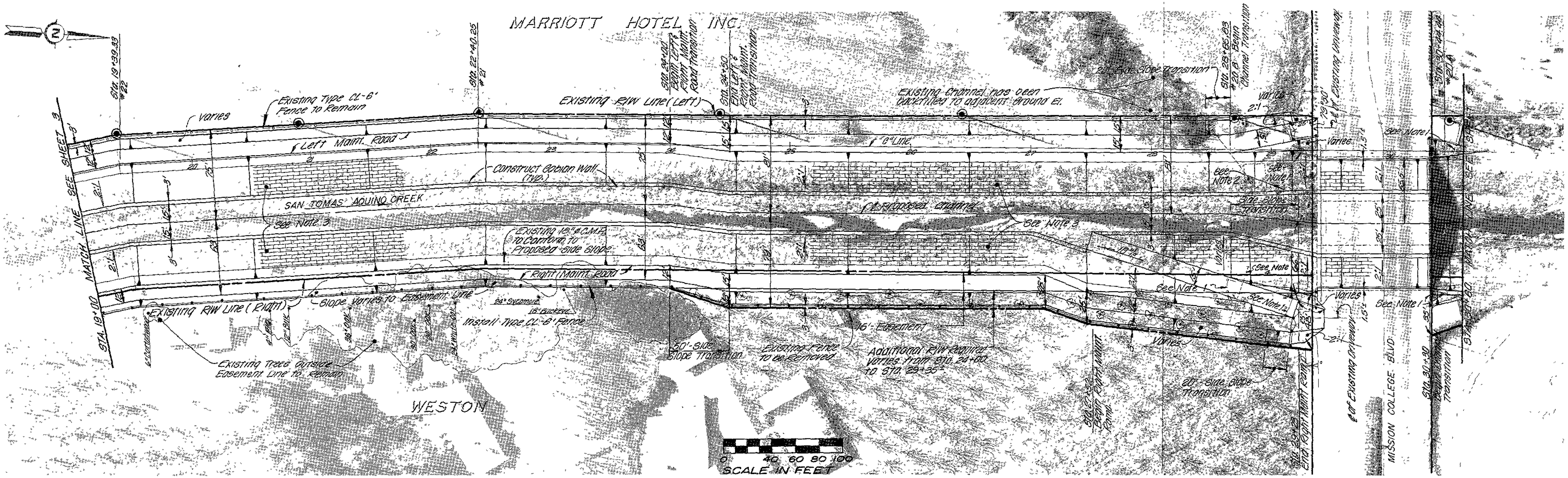
ENGINEERING APPROVAL

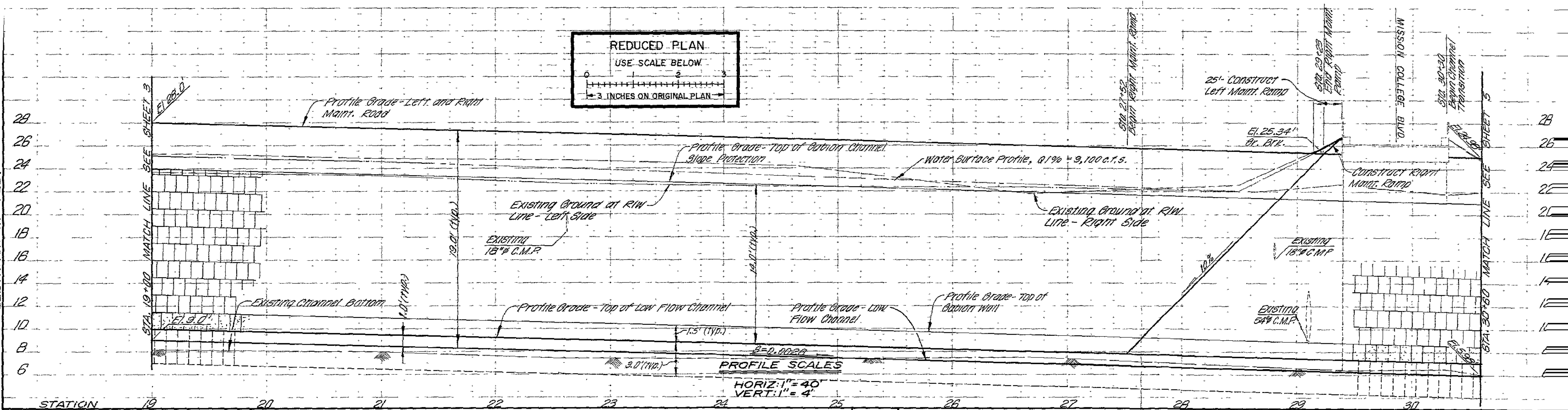
HEAD DESIGN BRANCH R.C.E. NO. 14455

SAN TOMAS AQUINO CREEK
Bayshore Freeway To Holding Basin
PLAN AND PROFILE

SCALE
As Shown

SHEET
3


MARRIOTT HOTEL INC.
WESTON
Sta. 19+39.33 #22
Sta. 22+40.25 #21
Sta. 24+30 Begin Left & Right Maint. Road Transition
Sta. 24+30 End Left & Right Maint. Road Transition
Sta. 28+85.83 #20 Begin Channel Transition
Existing Type CL-6' Fence To Remain
Varies
Existing R/W Line (Left)
Existing Channel has been backfilled to adjacent Ground El.
20' Side Slope Transition
Left Maint. Road
"G" Line
Construct Gabion Wall (Typ.)
SAN TOMAS AQUINO CREEK
See Note 3
Existing 18"⌀ C.M.P. to Conform to Proposed Side Slope
Proposed Channel
Right Maint. Road
Existing R/W Line (Right)
Slope Varies to Easement Line
Install Type CL-6' Fence
Existing Trees Outside Easement Line to Remain
50' Side Slope Transition
Existing Fence to be Removed
15' Easement
Additional R/W Required Varies from Sta. 24+80 to Sta. 29+35±
See Note 1
See Note 2
See Note 4
Sta. 27+52 Begin Right Maint. Ramp
Sta. 29+33 End Right Maint. Ramp
20' Side Slope Transition
℄ of Existing Driveway
MISSION COLLEGE BLVD.
Sta. 30+30 Begin Channel Transition
MATCH LINE SEE SHEET 3
MATCH LINE SEE SHEET 5
STA. 19+00
STA. 30+60
0 40 60 80 100
SCALE IN FEET


REDUCED PLAN
USE SCALE BELOW
0 1 2 3
3 INCHES ON ORIGINAL PLAN
El. 28.0
Profile Grade - Left and Right Maint. Road
Profile Grade - Top of Gabion Channel Slope Protection
Water Surface Profile, Q1% = 9,100 c.f.s.
Existing Ground at R/W Line - Left Side
Existing Ground at R/W Line - Right Side
Existing 18"⌀ C.M.P.
Existing Channel Bottom
El. 9.0'
Profile Grade - Top of Low Flow Channel
Profile Grade - Low Flow Channel
Profile Grade - Top of Gabion Wall
19.0' (Typ.)
1.0' (Typ.)
1.5' (Typ.)
3.0' (Typ.)
S=0.0028
10%
25' - Construct Left Maint. Ramp
El. 25.34' Gr. Brk.
Construct Right Maint. Ramp
Existing 54"⌀ C.M.P.
Sta. 27+52 Begin Right Maint. Ramp
Sta. 29+33 End Right Maint. Ramp
MISSION COLLEGE BLVD.
Sta. 30+30 Begin Channel Transition
MATCH LINE SEE SHEET 3
MATCH LINE SEE SHEET 5
STA. 19+00
STA. 30+60
ELEVATION IN FEET
28 26 24 22 20 18 16 14 12 10 8 6
STATION 19 20 21 22 23 24 25 26 27 28 29 30
PROFILE SCALES
HORIZ: 1" = 40'
VERT: 1" = 4'

REFER TO TRACING FOR LATEST REVISION

REV	DESCRIPTION	SUB	APPR

REFERENCE INFORMATION AND NOTES

DATE OF PHOTOGRAPHY 2-11-77

1. Existing Type CL-6' Fence with Gate to be Relocated.
2. Existing 54"⌀ C.M.P. to Conform to Proposed Side Slope.
3. After Installation of Gabion Slope Protection the surface shall be covered with 6" of earth material.
4. Existing 18"⌀ C.M.P. to Conform to Proposed Side Slope.

DATE	
DESIGN	G.T.O., R.Soto
DRAWN	R.Soto
CHECKED	

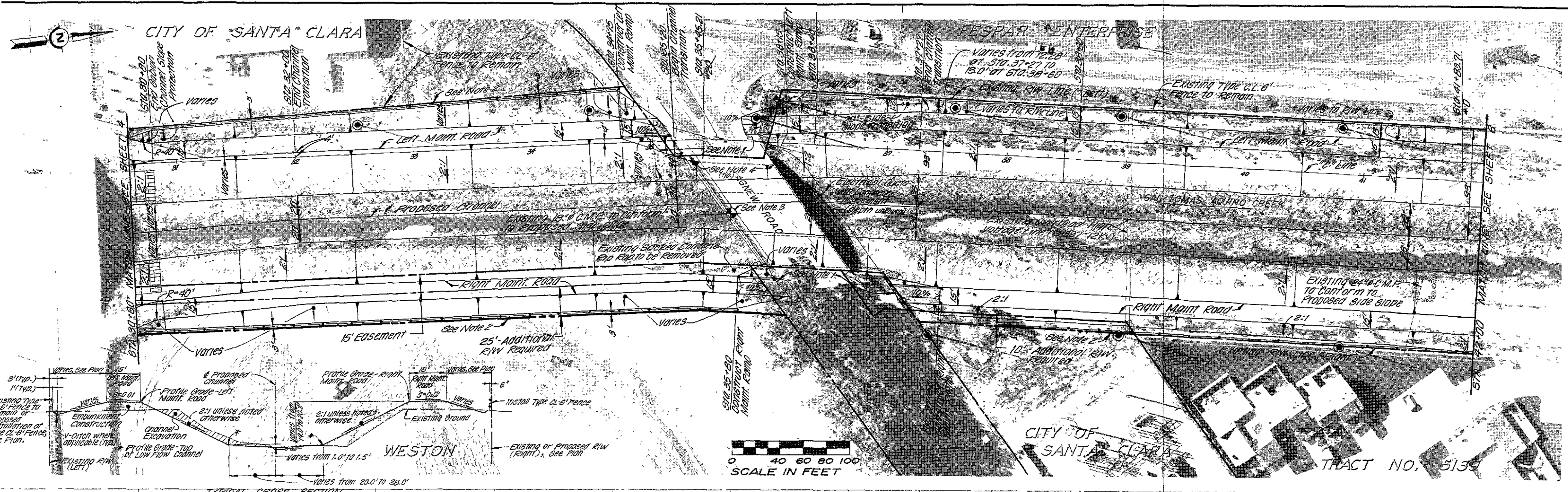
Santa Clara Valley Water District

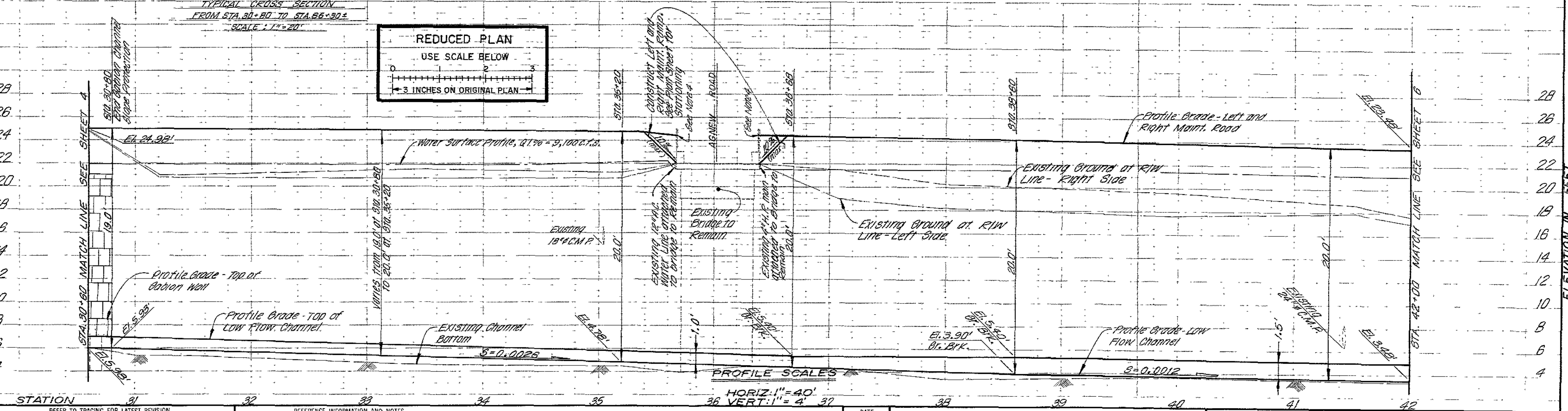
ENGINEERING CERTIFICATION
PROJECT ENGINEER R.C.E. NO. 27948
Bruce Wilson
DIVISION ENGINEER R.C.E. NO. 15851

ENGINEERING APPROVAL
HEAD DESIGN BRANCH R.C.E. NO. 17455

SAN TOMAS AQUINO CREEK
Bayshore Freeway To Holding Basin
PLAN AND PROFILE

SCALE As Sh
SHEET 4


CITY OF SANTA CLARA
FESPAR ENTERPRISE
Sta. 30+80 End Gabion Channel Slope Protection
Sta. 32+00 End Channel Transition
Sta. 35+20 Construct Left Maint. Ramp
Sta. 35+80 Begin Channel Transition
Sta. 35+45.21
Sta. 36+40
Sta. 36+88 Construct Left Maint. Ramp
Sta. 37+27 End Channel Transition
Sta. 38+60
Sta. 41+83.71
Existing Type CL-6' Fence to Remain
See Note 2
Varies
Left Maint. Road
Proposed Channel
Existing 18"ø C.M.P. to Conform to Proposed Side Slope
Existing Sacked Concrete Rip Rap to be Removed
Right Maint. Road
15' Easement
25' Additional R/W Required
Sta. 35+80 Construct Right Maint. Ramp
See Note 1
See Note 3
See Note 4
AGNEW ROAD
Varies from 12.28' at Sta. 37+27 to 13.0' at Sta. 38+60
Existing R/W Line (Left)
Varies to R/W Line
20' Side Slope Protection
Electrical Ducts
SAN TOMAS AQUINO CREEK
Existing Overhead High Voltage Line
Existing 24"ø C.M.P. to Conform to Proposed Side Slope
10' Additional R/W Required
Existing R/W Line (Right)
6" Line
2:1
10%
R=40'
MATCH LINE SEE SHEET 4
MATCH LINE SEE SHEET 6
STA. 30+80
STA. 42+00
0 40 60 80 100
SCALE IN FEET
CITY OF SANTA CLARA
TRACT NO. 5139
WESTON
8' (Typ.)
1' (Typ.)
Varies, See Plan
15'
Left Maint. Road
S=0.01
Existing Type CL-6' Fence to Remain or Proposed Installation of CL-6' Fence, See Plan.
Embankment Construction
V-Ditch where applicable (Typ.)
Existing R/W (Left)
℄ Proposed Channel
Profile Grade-Left Maint. Road
2:1 unless noted otherwise
Channel Excavation
Profile Grade-Top of Low Flow Channel
Varies from 1.0' to 1.5'
Varies from 20.0' to 28.0'
Profile Grade-Right Maint. Road
Right Maint. Road
S=0.01
6"
Install Type CL-6' Fence
Existing Ground
Existing or Proposed R/W (Right), See Plan
TYPICAL CROSS SECTION
FROM STA. 30+80 TO STA. 86+30±
SCALE: 1"=20'


REDUCED PLAN
USE SCALE BELOW
0 1 2 3
3 INCHES ON ORIGINAL PLAN
MATCH LINE SEE SHEET 4
MATCH LINE SEE SHEET 6
Sta. 30+80 End Gabion Channel Slope Protection
Sta. 35+20
Construct Left and Right Maint. Ramp. See Plan Sheet for Stationing
See Note 4
AGNEW ROAD
Sta. 36+88
Sta. 38+60
El. 24.98'
El. 23.98'
Water Surface Profile, Q1% = 9,100 c.f.s.
Profile Grade-Left and Right Maint. Road
Existing Ground at R/W Line-Right Side
Existing Ground at R/W Line-Left Side
Existing 18"ø C.M.P.
Existing 12"ø W.C. Water Line Attached to Bridge to Remain
Existing Bridge to Remain
Existing 4" H.P. Main Attached to Bridge to Remain
19.0'
20.0'
Varies from 19.0' at Sta. 30+80 to 20.0' at Sta. 35+20
1.0'
1.5'
Existing 24"ø C.M.P.
Profile Grade-Top of Gabion Wall
Profile Grade-Top of Low Flow Channel
Existing Channel Bottom
S=0.0026
S=0.0012
El. 5.95'
El. 5.99'
El. 4.76'
El. 5.20' Br. Brk.
El. 3.90' Br. Brk.
El. 5.40' Br. Brk.
El. 3.48'
Profile Grade-Low Flow Channel
STA. 30+80
STA. 42+00
28 26 24 22 20 18 16 14 12 10 8 6 4
ELEVATION IN FEET
PROFILE SCALES
HORIZ: 1"=40'
VERT: 1"=4'
STATION
31 32 33 34 35 36 37 38 39 40 41 42

REFER TO TRACING FOR LATEST REVISION

	DESCRIPTION	SUB	APPR

REFERENCE INFORMATION AND NOTES

DATE OF PHOTOGRAPHY 2-11-77

1. Existing Type CL-6' Fence with Gate to be Relocated.
2. Install Type CL 6' Fence along Proposed and Existing R/W as shown on Plan.
3. Basis of Elevation T.B.M. ST-E - Found P.K. Nail in "D" of Sidewalk. Located in middle of upstream side of Bridge. Elev. 22.99'
4. Construct Floodwalls from Maint. Ramp to Existing Bridge headwalls.

DATE

DESIGN G.T.O., R.Soto

DRAWN R.Soto

CHECKED

Santa Clara Valley Water District

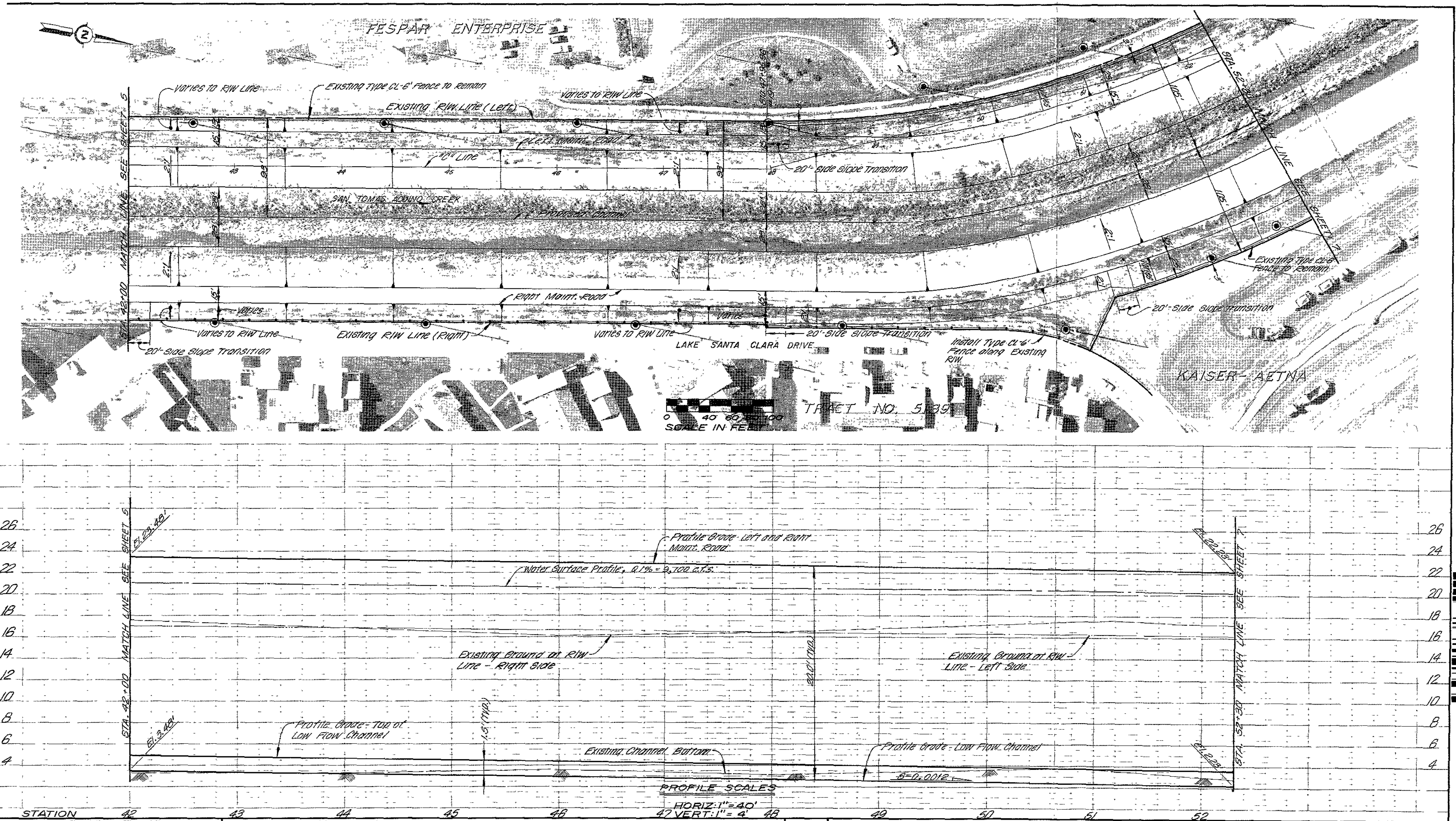
ENGINEERING CERTIFICATION
PROJECT ENG NEER R.C.E. NO. 22940
Bruce Wilson
DIVISION ENG NEER R.C.E. NO. 15857

ENGINEERING APPROVAL
HEAD, DESIGN BRANCH R.C.E. NO. 14455

SAN TOMAS AQUINO CREEK
Bayshore Freeway To Holding Basin
PLAN AND PROFILE

SCALE As Shown

SHEET 5



FESPAR ENTERPRISE
Varies to R/W Line
Existing Type CL-6' Fence to Remain
Existing R/W Line (Left)
Varies to R/W Line
Left Maint. Road
"C" Line
San Tomas Aquino Creek
℄ Proposed Channel
20'± Side Slope Transition
STA. 52+30 MATCH LINE SEE SHEET 7
Existing Type CL-6' Fence to Remain
20'± Side Slope Transition
Right Maint. Road
Varies
Varies to R/W Line
Existing R/W Line (Right)
Varies to R/W Line
LAKE SANTA CLARA DRIVE
20' Side Slope Transition
Install Type CL-6' Fence along Existing R/W
KAISER - AETNA
TRACT NO. 5139
20'± Side Slope Transition
STA. 42+00 MATCH LINE SEE SHEET 5
0 40 60 80 100
SCALE IN FEET
El. 23.49'
Profile Grade - Left and Right Maint. Road
Water Surface Profile, 0.1% = 9,700 c.f.s.
El. 22.25'
Existing Ground at R/W Line - Right Side
Existing Ground at R/W Line - Left Side
20.0' (Typ.)
1.5' (Typ.)
El. 3.49'
Profile Grade - Top of Low Flow Channel
Existing Channel Bottom
Profile Grade - Low Flow Channel
S=0.0012
El. 2.23'
STA. 52+30 MATCH LINE SEE SHEET 7
PROFILE SCALES
HORIZ: 1"=40'
VERT: 1"=4'
STATION
42
43
44
45
46
47
48
49
50
51
52
26
24
22
20
18
16
14
12
10
8
6
4

REFER TO TRACING FOR LATEST REVISION

REV	DESCRIPTION	SUB	APPR

REFERENCE INFORMATION AND NOTES

DATE OF PHOTOGRAPHY 2-11-77

REDUCED PLAN
USE SCALE BELOW
0 1 2 3
3 INCHES ON ORIGINAL PLAN

DATE
DESIGN G.T.O., R.Soto
DRAWN R. Soto
CHECKED

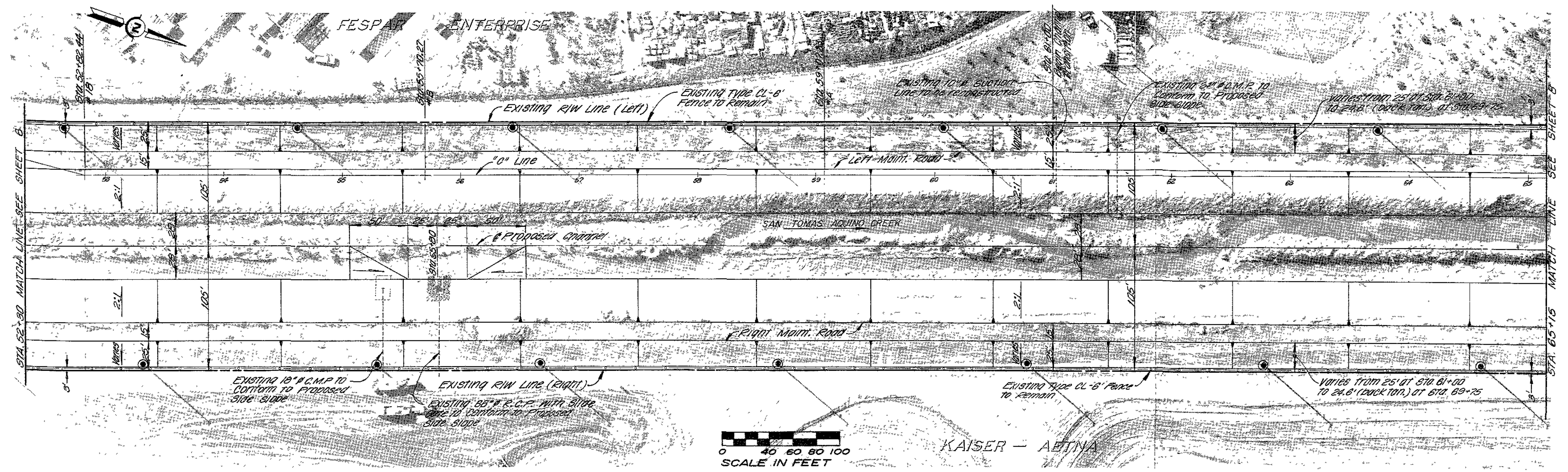
Santa Clara Valley Water District

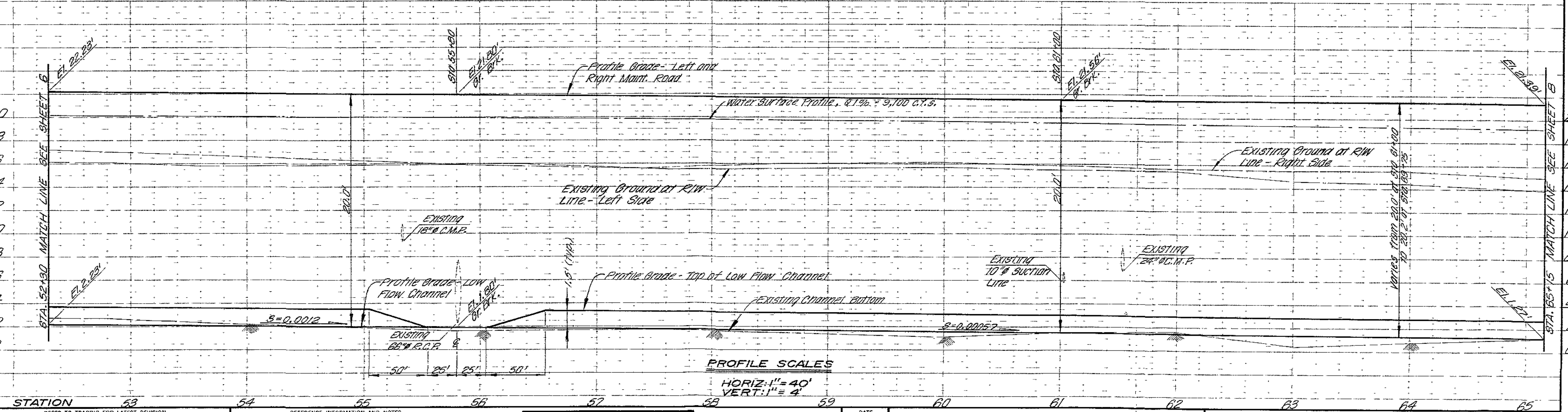
ENGINEERING CERTIFICATION
PROJECT ENGINEER R.C.E. NO.
Bruce Wilson
DIVISION ENGINEER R.C.E. NO. 1585

ENGINEERING APPROVAL
HEAD, DESIGN BRANCH R.C.E. NO. 14455

SAN TOMAS AQUINO CREEK
Bayshore Freeway To Holding Basin
PLAN AND PROFILE

SCALE As Shown
SHEET 6


FESPAR
ENTERPRISE
Sta. 52+82.44
Sta. 55+70.27
Sta. 59+07.2
Sta. 61+00 Begin Chain Link Fence
Existing R/W Line (Left)
Existing Type CL-6' Fence to Remain
Existing 10"ø Suction Line to be reconstructed
Existing 24"ø C.M.P. to Conform to Proposed Side Slope
Varies from 25' at Sta. 61+00 to 24.8' (back tan.) at Sta. 69+75
"C" Line
Left Maint. Road
SAN TOMAS AQUINO CREEK
℄ Proposed Channel
Sta. 55+80
Right Maint. Road
Existing R/W Line (Right)
Existing 18"ø C.M.P. to Conform to Proposed Side Slope
Existing 66"ø R.C.P. with Slide Gate to Conform to Proposed Side Slope
Existing Type CL-6' Fence to Remain
Varies from 25' at Sta. 61+00 to 24.6' (back tan.) at Sta. 69+75
STA. 52+30 MATCH LINE SEE SHEET 6
STA. 65+15 MATCH LINE SEE SHEET 8
Varies
25'
15'
105'
2:1
50'
25'
25'
50'
3'
53
54
55
56
57
58
59
60
61
62
63
64
65
0
40 60 80 100
SCALE IN FEET
KAISER — AETNA


El. 22.23'
Sta. 55+80
El. 21.80' Gr. Brk.
Profile Grade - Left and Right Maint. Road
Water Surface Profile, Q1% = 9,100 c.f.s.
Sta. 61+00
El. 21.56' Gr. Brk.
El. 21.39'
Existing Ground at R/W Line - Right Side
Existing Ground at R/W Line - Left Side
20.0'
Existing 18"ø C.M.P.
Existing 24"ø C.M.P.
Existing 10"ø Suction Line
Varies from 20.0' at Sta. 61+00 to 20.2' at Sta. 69+75
El. 2.23'
Profile Grade - Low Flow Channel
El. 1.80' Gr. Brk.
1.5' (Typ.)
Profile Grade - Top of Low Flow Channel
Existing Channel Bottom
S=0.0012
S=0.00057
Existing 66"ø R.C.P.
El. 1.74'
50'
25'
25'
50'
STA. 52+30 MATCH LINE SEE SHEET 6
STA. 65+15 MATCH LINE SEE SHEET 8
PROFILE SCALES
HORIZ: 1" = 40'
VERT: 1" = 4'
STATION
53
54
55
56
57
58
59
60
61
62
63
64
65

REFER TO TRACING FOR LATEST REVISION

	DESCRIPTION	SUB	APPR

REFERENCE INFORMATION AND NOTES

DATE OF PHOTOGRAPHY 2-11-77

REDUCED PLAN
USE SCALE BELOW
0 1 2 3
3 INCHES ON ORIGINAL PLAN

DATE

DESIGN G.T.O., R.Soto

DRAWN R. Soto

CHECKED

Santa Clara Valley Water District

ENGINEERING CERTIFICATION

PROJECT ENGINEER R.C.E. NO. 27916

Bruce Wilson
DIVISION ENGINEER R.C.E. NO. 15851

ENGINEERING APPROVAL

HEAD DESIGN BRANCH R.C.E. NO. 4455

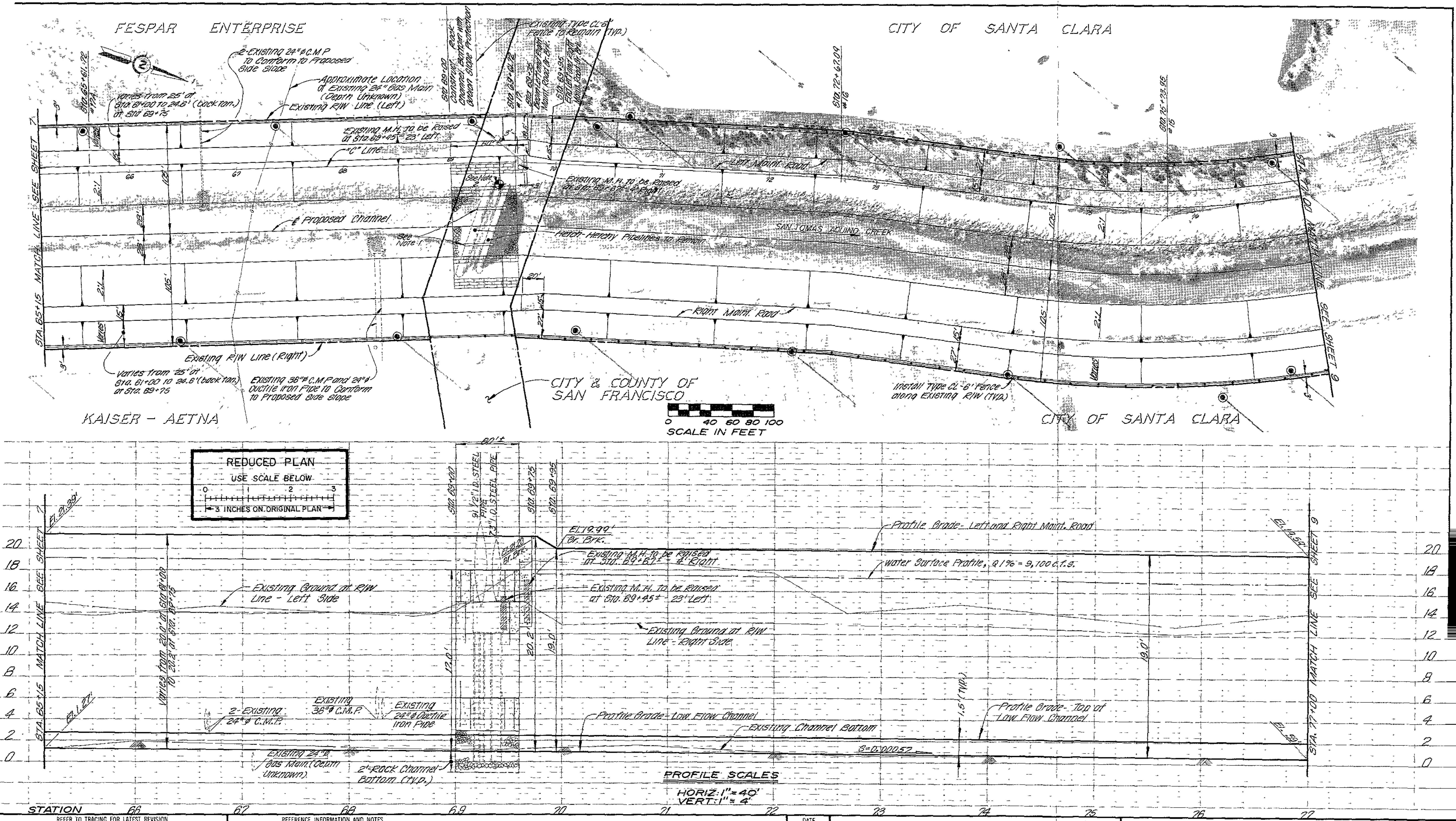
SAN TOMAS AQUINO CREEK

Bayshore Freeway To Holding Basin

PLAN AND PROFILE

SCALE As Shown

SHEET 7


FESPAR ENTERPRISE
CITY OF SANTA CLARA
N
2-Existing 24"ø C.M.P To Conform to Proposed Side Slope
Approximate Location of Existing 24" Gas Main (Depth Unknown)
Existing R/W Line (Left)
Varies from 25' at Sta. 61+00 to 24.8' (back tan.) at Sta 69+75
Sta. 65+61.72 #17A
Sta 69+00 Construct Rock Channel Bottom with Gabion Slope Protection
Sta. 69+61.72 #17
Sta. 69+75 Begin Left and Right Maint. Road Gr. Brk.
Sta. 69+95 End Left and Right Maint. Road Gr. Brk.
Existing Type CL-6' Fence to Remain (Typ.)
Existing M.H. to be Raised at Sta. 69+45± - 23' Left
"C" Line
See Note 2
Existing M.H. to be Raised at Sta. 69+67± - 4' Right
Left Maint. Road
Sta 72+67.09 #16
Sta 75+29.95 #15
℄ Proposed Channel
See Note 1
Hetch-Hetchy Pipelines to Remain
SAN TOMAS AQUINO CREEK
Right Maint. Road
STA. 65+15 MATCH LINE SEE SHEET 7
STA. 77+00 MATCH LINE SEE SHEET 9
Existing R/W Line (Right)
Varies from 25' at Sta. 61+00 to 24.8' (back tan.) at Sta. 69+75
Existing 36"ø C.M.P and 24"ø Ductile Iron Pipe to Conform to Proposed Side Slope
CITY & COUNTY OF SAN FRANCISCO
Install Type CL-6' Fence along Existing R/W (Typ.)
KAISER - AETNA
CITY OF SANTA CLARA
0 40 60 80 100
SCALE IN FEET
REDUCED PLAN
USE SCALE BELOW
0 1 2 3
3 INCHES ON ORIGINAL PLAN
El. 21.39'
El. 1.27'
STA. 65+15 MATCH LINE SEE SHEET 7
Varies from 20.0' at Sta 69+00 to 20.2' at Sta. 69+75
Existing Ground at R/W Line - Left Side
2-Existing 24"ø C.M.P.
Existing 36"ø C.M.P.
Existing 24"ø Ductile Iron Pipe
Existing 24"ø Gas Main (Depth Unknown)
2'-Rock Channel Bottom (Typ.)
80'±
Sta. 69+00
91 1/2" I.D. STEEL PIPE
73" I.D. STEEL PIPE
Sta. 69+75
Sta. 69+95
El. 21.20 Gr. Brk.
El. 19.99' Gr. Brk.
12.0'
20.2'
19.0'
Existing M.H. to be Raised at Sta. 69+67± - 4' Right
Existing M.H. to be Raised at Sta. 69+45± - 23' Left
Existing Ground at R/W Line - Right Side
Profile Grade - Left and Right Maint. Road
Water Surface Profile, Q1% = 9,100 c.f.s.
Profile Grade - Low Flow Channel
Existing Channel Bottom
1.5' (Typ.)
Profile Grade - Top of Low Flow Channel
S=0.000057
El. 19.54'
El. 1.59'
19.0'
STA. 77+00 MATCH LINE SEE SHEET 9
PROFILE SCALES
HORIZ: 1"=40'
VERT: 1"=4'
20
18
16
14
12
10
8
6
4
2
0
STATION
66
67
68
69
70
71
72
73
74
75
76
77

REFER TO TRACING FOR LATEST REVISION

REV	DESCRIPTION	SUB	APPR

REFERENCE INFORMATION AND NOTES

DATE OF PHOTOGRAPHY 2-11-77

1. Existing Pipe Supports to be strengthened in accordance with the requirements of the San Francisco Water Department.
2. Basis of Elevation T.B.M. ST-D-Cut "O" at ℄ of Walkway. Located on Westerly side of San Tomas Aquino Creek at Hetch-Hetchy Pipelines. Elev. 16.30'.

DATE
DESIGN G.T.O., R.Soto
DRAWN R.Soto
CHECKED

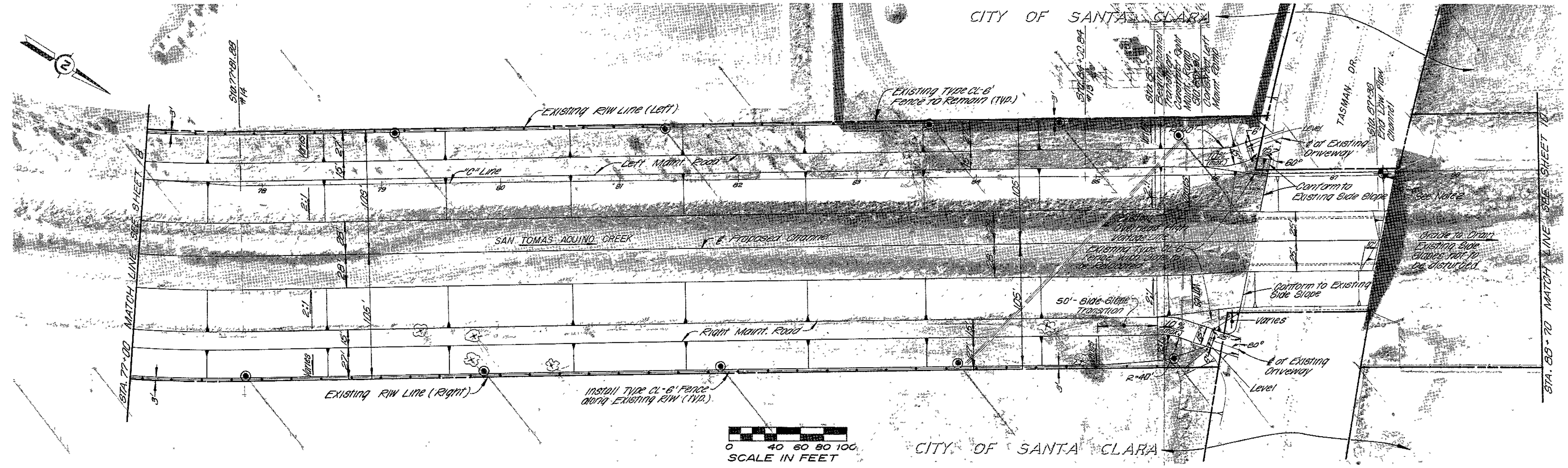
Santa Clara Valley Water District

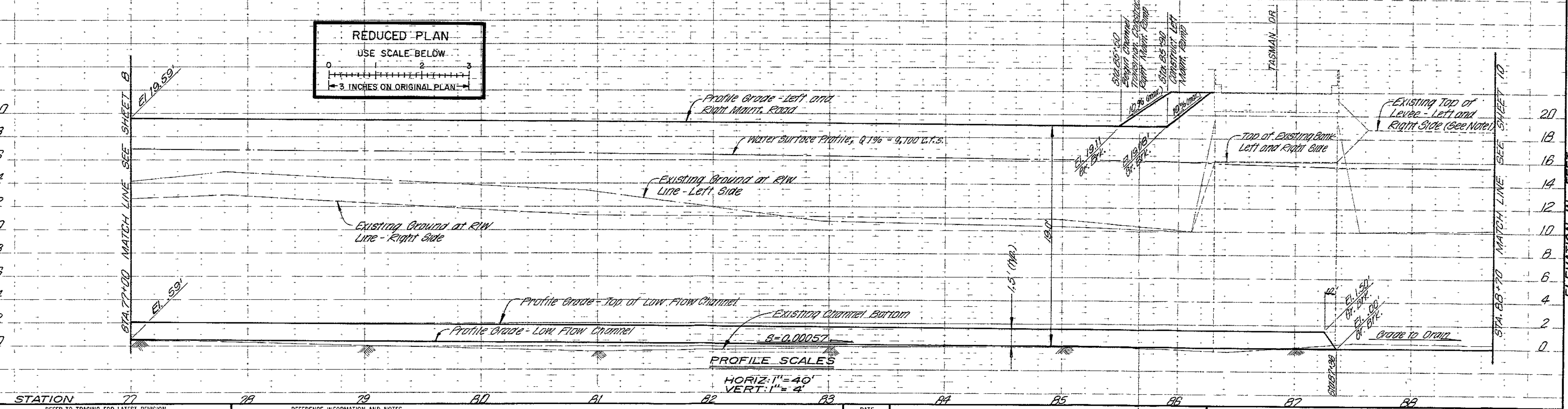
ENGINEERING CERTIFICATION
PROJECT ENGINEER
Bruce Wilson
DIVISION ENGINEER R.C.E. NO. 15851

ENGINEERING APPROVAL
HEAD DESIGN BRANCH R.C.E. NO. 14455

SAN TOMAS AQUINO CREEK
Bayshore Freeway To Holding Basin
PLAN AND PROFILE

SCALE As Shown
SHEET 8


CITY OF SANTA CLARA
Sta.77+81.88 #14
Existing R/W Line (Left)
Existing Type CL-6' Fence to Remain (Typ.)
Sta.84+00.84 #15
Sta.85+50 Begin Channel Transition. Construct Right Maint. Ramp
Sta.85+90 Construct Left Maint. Ramp
TASMAN DR.
Sta.87+36 End Low Flow Channel
"C" Line
Left Maint. Road
SAN TOMAS AQUINO CREEK
℄ Proposed Channel
Existing Overhead High Voltage Line
Existing Type CL-6' Fence with Gate to be Relocated
Level
℄ of Existing Driveway
60°
Conform to Existing Side Slope
See Note 2
Grade to Drain
Existing Side Slopes not to be disturbed
Conform to Existing Side Slope
50'- Side Slope Transition
10% (max.)
Varies
R=40'
Right Maint. Road
Existing R/W Line (Right)
Install Type CL-6' Fence along Existing R/W (Typ.)
105'
106'
2:1
15'
27'
28'
25'
10'
6'
3'
STA. 77+00 MATCH LINE SEE SHEET 8
STA. 88+70 MATCH LINE SEE SHEET 10
78
79
80
81
82
83
84
85
86
87
88
0 40 60 80 100
SCALE IN FEET
CITY OF SANTA CLARA


REDUCED PLAN
USE SCALE BELOW
0 1 2 3
3 INCHES ON ORIGINAL PLAN
STA. 77+00 MATCH LINE SEE SHEET 8
El. 19.59'
El. .59'
Profile Grade - Left and Right Maint. Road
Water Surface Profile, Q1% = 9,100 C.F.S.
Existing Ground at R/W Line - Left Side
Existing Ground at R/W Line - Right Side
Profile Grade - Top of Low Flow Channel
Profile Grade - Low Flow Channel
Existing Channel Bottom
S=0.00057
Sta. 85+50 Begin Channel Transition. Construct Right Maint. Ramp
Sta. 85+90 Construct Left Maint. Ramp
10% (max.)
El. 19.11' Gr. Brk.
El. 19.08' Gr. Brk.
TASMAN DR.
Top of Existing Bank Left and Right Side
Existing Top of Levee - Left and Right Side (See Note 1)
19.0'
1.5' (Typ.)
12'
El. 1.50' Gr. Brk.
El. .00' Gr. Brk.
Grade to Drain
Sta. 87+36
STA. 88+70 MATCH LINE SEE SHEET 10
0
2
4
6
8
10
12
14
16
18
20
PROFILE SCALES
HORIZ: 1"=40'
VERT: 1"=4'
STATION 77 78 79 80 81 82 83 84 85 86 87 88

REFER TO TRACING FOR LATEST REVISION

	DESCRIPTION	SUB	APPR

REFERENCE INFORMATION AND NOTES

DATE OF PHOTOGRAPHY 2-11-77

1. Existing Ground at R/W Line is at Top of Levee. (Right Side)
2. Basis of Elevation T.B.M. ST-C - Cut "O" on Westerly edge of Bridge. (downstream side). Located 0.5' Southerly of curb face. Elev. 21.40'.

DATE	
DESIGN	W.J.S., R.Soto
DRAWN	R.Soto
CHECKED	

Santa Clara Valley Water District

ENGINEERING CERTIFICATION
PROJECT ENGINEER R.C.E. NO. 22940
Bruce Wilson
DIVISION ENGINEER R.C.E. NO. 1585

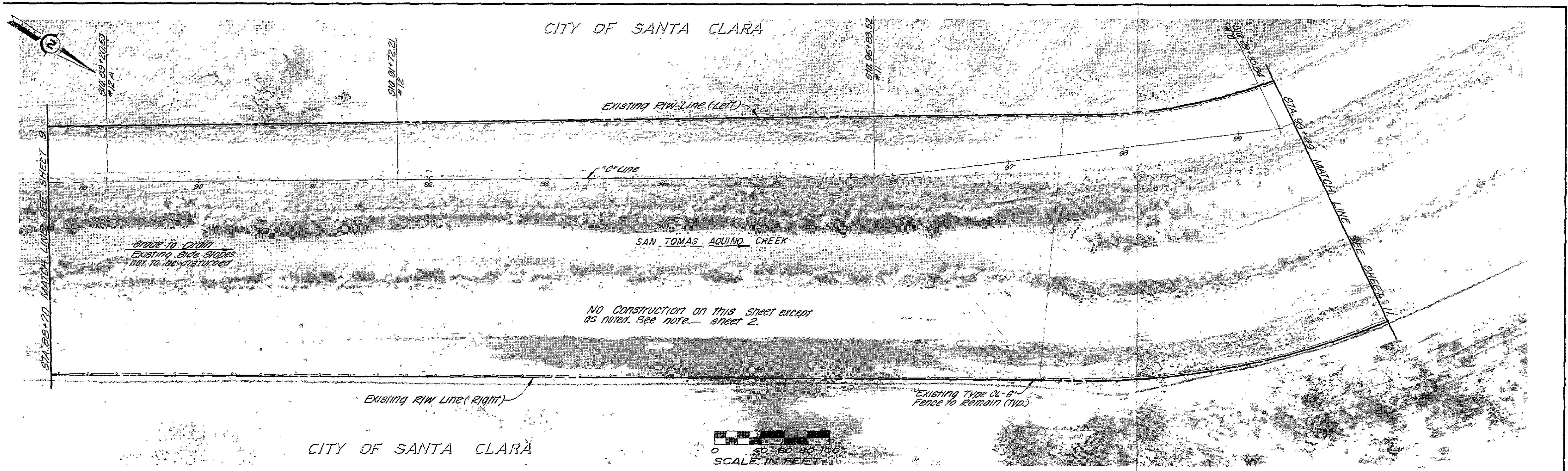
ENGINEERING APPROVAL
HEAD DESIGN BRANCH R.C.E. NO. 14465

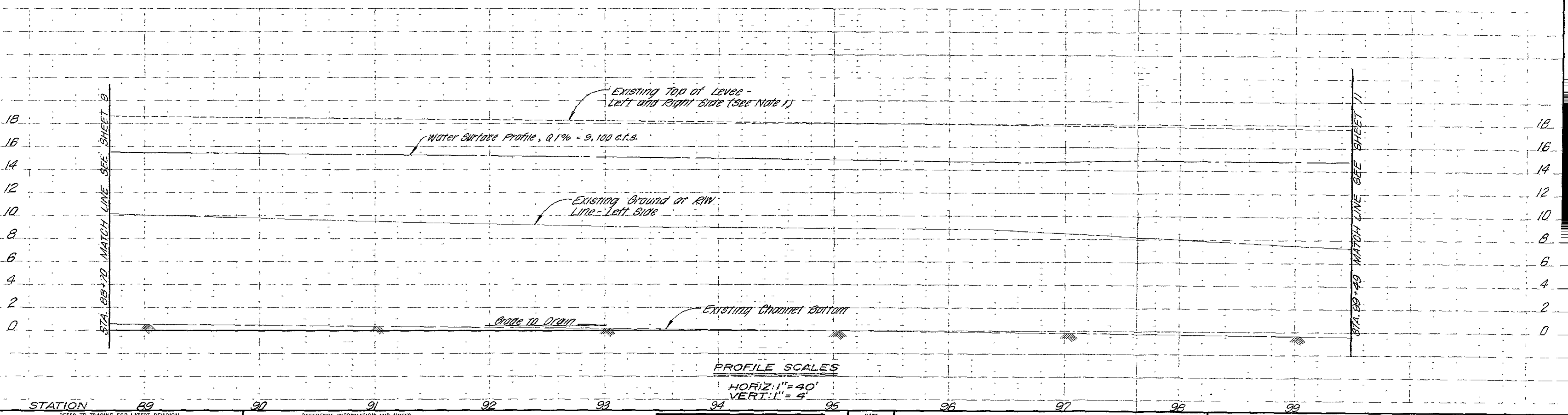
SAN TOMAS AQUINO CREEK

Bayshore Freeway To Holding Basin

PLAN AND PROFILE

SCALE
As Shown
SHEET
9


CITY OF SANTA CLARA
N
STA. 89+20.53
#12A
STA. 91+72.21
#12
STA. 95+83.52
#11
STA. 99+35.84
#10
Existing R/W Line (Left)
"C" Line
89
90
91
92
93
94
95
96
97
98
99
STA. 88+70 MATCH LINE SEE SHEET 9
STA. 99+49 MATCH LINE SEE SHEET 11
SAN TOMAS AQUINO CREEK
Grade to Drain
Existing Side Slopes not to be disturbed
No Construction on this sheet except as noted. See note sheet 2.
Existing R/W Line (Right)
Existing Type CL-6' Fence to Remain (Typ.)
CITY OF SANTA CLARA
0 40 60 80 100
SCALE IN FEET



REFER TO TRACING FOR LATEST REVISION			
REV	DESCRIPTION	SUB	APPR

REFERENCE INFORMATION AND NOTES

DATE OF PHOTOGRAPHY 2-11-77

1. Existing Ground at R/W Line is at Top of Levee. (Right Side)

REDUCED PLAN
USE SCALE BELOW
0 1 2 3
3 INCHES ON ORIGINAL PLAN

DATE	
DESIGN	W.J.S., R.Soto
DRAWN	R.Soto
CHECKED	

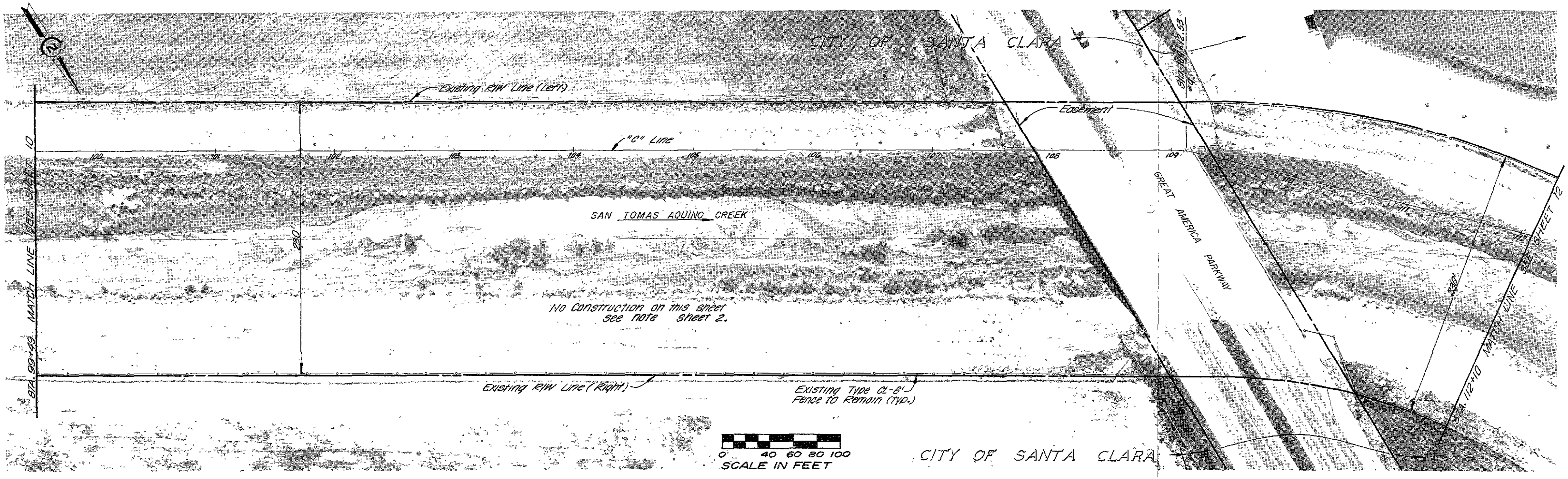
Santa Clara Valley Water District

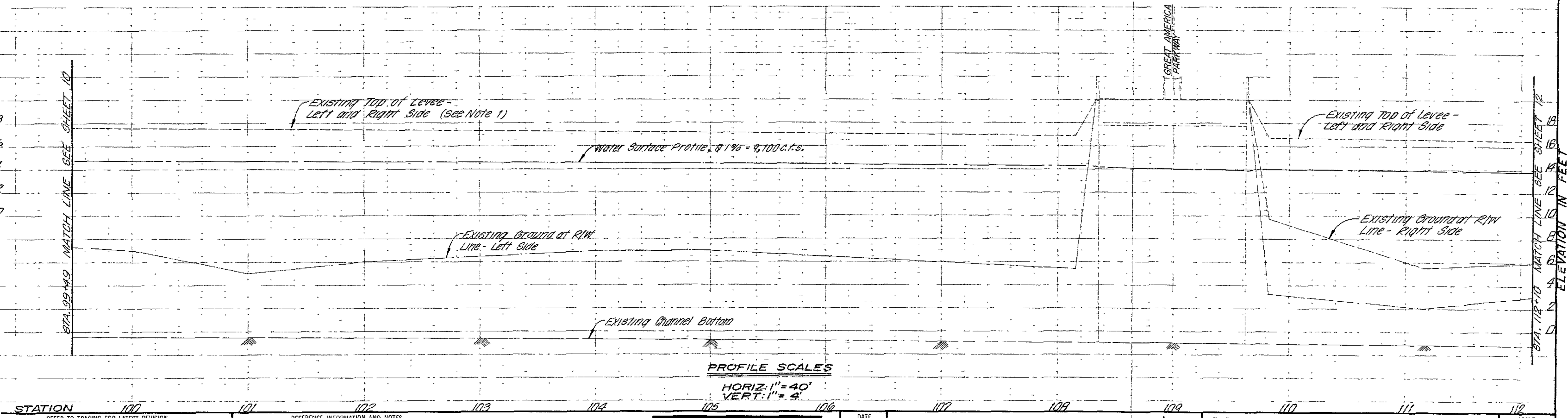
ENGINEERING CERTIFICATION
PROJECT ENGINEER R.C.E. NO. 22916
Bruce Wilson
DIVISION ENGINEER R.C.E. NO. 1505

ENGINEERING APPROVAL
HEAD DESIGN BRANCH R.C.E. NO. 14455

SAN TOMAS AQUINO CREEK
Bayshore Freeway To Holding Basin
PLAN AND PROFILE

SCALE
As Shown
SHEET
10




GREAT AMERICA PARKWAY
STA. 99+49 MATCH LINE SEE SHEET 10
Existing Top of Levee - Left and Right Side (See Note 1)
Water Surface Profile, Q1% = 4,100 c.f.s.
Existing Ground at R/W Line - Left Side
Existing Channel Bottom
Existing Top of Levee - Left and Right Side
Existing Ground at R/W Line - Right Side
STA. 112+10 MATCH LINE SEE SHEET 12
18
16
14
12
10
8
6
4
2
0
ELEVATION IN FEET
PROFILE SCALES
HORIZ: 1" = 40'
VERT: 1" = 4'
STATION
100
101
102
103
104
105
106
107
108
109
110
111
112

REFER TO TRACING FOR LATEST REVISION

DESCRIPTION	SUB	APPR

REFERENCE INFORMATION AND NOTES

DATE OF PHOTOGRAPHY 2-11-77

1. Existing Ground at R/W Line is at Top of Levee. (Right Side)

REDUCED PLAN
USE SCALE BELOW
0 1 2 3
3 INCHES ON ORIGINAL PLAN

DATE	
DESIGN	W.J.S., R.Soto
DRAWN	R.Soto
CHECKED	

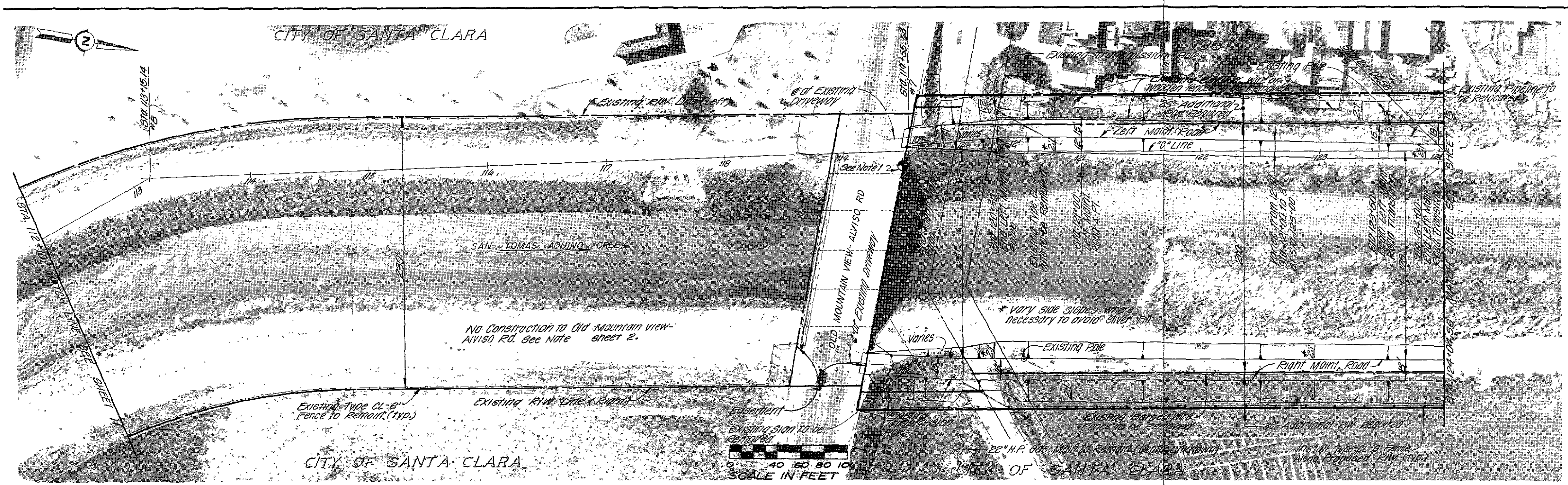
Santa Clara Valley Water District

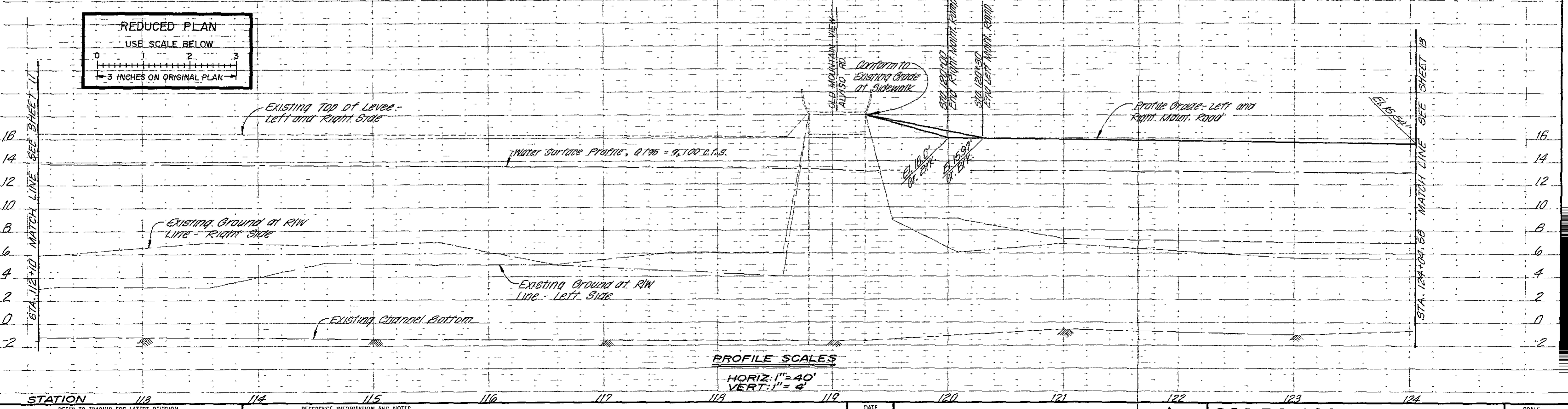
ENGINEERING CERTIFICATION
PROJECT ENGINEER R.C.E. NO. 22948
Bruce Wilson
DIVISION ENGINEER R.C.E. NO. 15891

ENGINEERING APPROVAL
HEAD DESIGN BRANCH R.C.E. NO. 14455

SAN TOMAS AQUINO CREEK
Bayshore Freeway To Holding Basin
PLAN AND PROFILE

SCALE
As Shown
SHEET
11


CITY OF SANTA CLARA
Sta. 113+15.14 #8
Existing R/W Line (Left)
℄ of Existing Driveway
Sta. 119+55.63 #7
Existing Transmission Pole
Existing Pole
Existing Barbed wire or wooden fence to be Removed
25' Additional R/W Required
Existing Pipeline to be Relocated
Left Maint. Road
"C" Line
See Note 1
STA. 112+10 MATCH LINE SEE SHEET 11
SAN TOMAS AQUINO CREEK
OLD MOUNTAIN VIEW - ALVISO RD
℄ of Existing Driveway
Sta. 120+30 End Left Maint. Ramp
Existing Tile Drain Line to be Removed
Sta. 121+00 Left Maint. Road P.I.
Varies from 120' Sta. 121+00 to 3' at Sta. 125+00
Sta. 123+50 Begin Left Maint. Road Transition
Sta. 124+00 End Left Maint. Road Transition
STA. 124+04.56 MATCH LINE SEE SHEET 13
No Construction to Old Mountain View-Alviso Rd. See Note sheet 2.
* Vary side slopes where necessary to avoid sliver Fill
Varies
Existing Pole
Right Maint. Road
Existing Type CL-6' Fence to Remain (typ.)
Existing R/W Line (Right)
Easement
Existing Sign to be Removed
Existing Transmission Pole
Existing Barbed wire Fence to be Removed
30' Additional R/W Required
22" H.P. Gas Main to Remain (Depth Unknown)
Install Type CL-6' Fence Along Proposed R/W (typ.)
0 40 60 80 100
SCALE IN FEET
CITY OF SANTA CLARA
113
114
115
116
117
118
119
120
121
122
123
124


REDUCED PLAN
USE SCALE BELOW
0 1 2 3
3 INCHES ON ORIGINAL PLAN
STA. 112+10 MATCH LINE SEE SHEET 11
Existing Top of Levee - Left and Right Side
Water Surface Profile, 1% = 9,100 c.f.s.
Existing Ground at R/W Line - Right Side
Existing Ground at R/W Line - Left Side
Existing Channel Bottom
OLD MOUNTAIN VIEW-ALVISO RD
Conform to Existing Grade at Sidewalk
Sta. 120+00 End Right Maint. Ramp
Sta. 120+30 End Left Maint. Ramp
El. 18.0' Gr. Brk.
El. 15.97' Gr. Brk.
Profile Grade - Left and Right Maint. Road
El. 15.54'
STA. 124+04.56 MATCH LINE SEE SHEET 13
16
14
12
10
8
6
4
2
0
-2
PROFILE SCALES
HORIZ: 1"=40'
VERT: 1"=4'
STATION
113
114
115
116
117
118
119
120
121
122
123
124

REV	DESCRIPTION	SUB	APPR

REFER TO TRACING FOR LATEST REVISION

REFERENCE INFORMATION AND NOTES

DATE OF PHOTOGRAPHY 2-11-77

1. Basis of Elevation T.B.M. S.T.-A - Found "o" cut on downstream Headwall (Easterly Side). Elev. 10.65'

DATE

DESIGN W.J.S., R. Soto

DRAWN R. Soto

CHECKED

Santa Clara Valley Water District

ENGINEERING CERTIFICATION

PROJECT ENGINEER R.C.E. NO. 22948

Bruce Wilson

DIVISION ENGINEER R.C.E. NO. 15851

ENGINEERING APPROVAL

Edwin Ferguson

HEAD DESIGN BRANCH R.C.E. NO. 14455

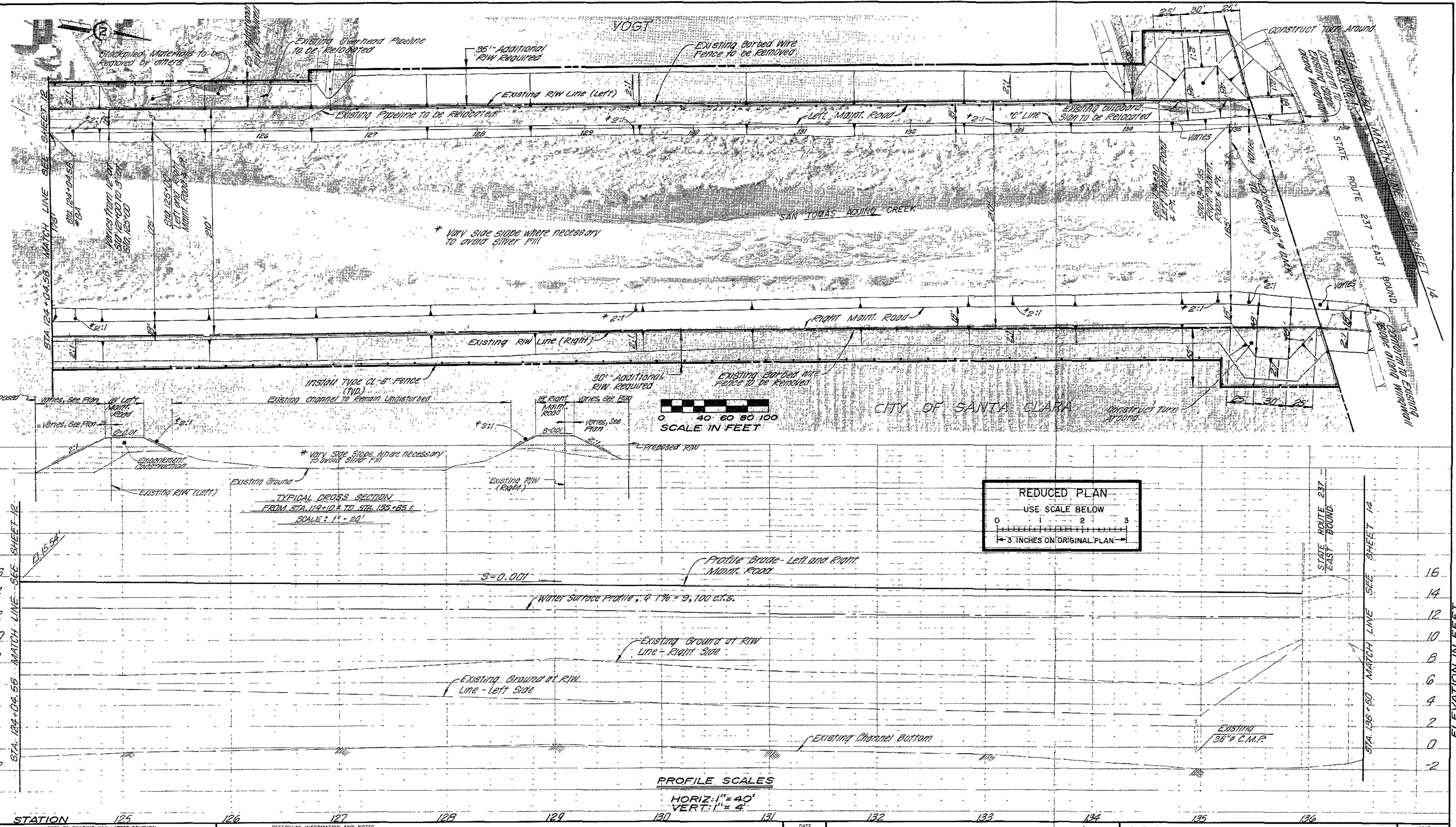
SAN TOMAS AQUINO CREEK

Bayshore Freeway To Holding Basin

PLAN AND PROFILE

SCALE As Shown

SHEET 12


VOGT
Stockpiled Materials to be Removed by others
25'-Additional R/W Required
Existing Overhead Pipeline to be Relocated
35'-Additional R/W Required
Existing Barbed Wire Fence to be Removed
Existing R/W Line (Left)
Existing Pipeline to be Relocated
Left Maint. Road
"C" Line
Existing Billboard Sign to be Relocated
Construct Turn Around
Conform to Existing Slope along Windwall
STA. 136+50 See Note 1 MATCH LINE SEE SHEET 14
STATE ROUTE 237 - EAST BOUND
25' 30' 25'
Varies
*2:1
2:1
18'
48'
126
127
128
129
130
131
132
133
134
135
136
STA. 124+04.58 MATCH LINE SEE SHEET 12
175'
Sta. 124+04.58 #8A
Varies from 12' at Sta. 121+00 to 3' at Sta. 125+00
125'
Sta. 125+00 Left and Right Maint. Road & P.
210'
* Vary side slope where necessary to avoid Silver Fill
SAN TOMAS AQUINO CREEK
Sta. 134+30 Left Maint. Road & P.
Sta. 134+95 Right Maint. Road & P.
185'
Existing 36"ø C.M.P. to Remain
Right Maint. Road
Existing R/W Line (Right)
Install Type "CL-6" Fence (Typ.)
30'-Additional R/W Required
Existing Barbed Wire Fence to be Removed
Conform to Existing Slope along Windwall
Construct Turn Around
CITY OF SANTA CLARA
0 40 60 80 100
SCALE IN FEET
Varies, See Plan
18' Left Maint. Road
Varies, See Plan
S=0.01
Existing Channel to Remain Undisturbed
18' Right Maint. Road
Varies, See Plan
S=0.01
Proposed R/W
Embankment Construction
* Vary Side Slope where necessary to avoid Silver Fill
Existing Ground
Existing R/W (Left)
Existing R/W (Right)
TYPICAL CROSS SECTION
FROM STA. 119+10± TO STA. 135+85±
SCALE: 1" = 20'
REDUCED PLAN
USE SCALE BELOW
0 1 2 3
3 INCHES ON ORIGINAL PLAN
STA. 124+04.56 MATCH LINE SEE SHEET 12
El. 15.54
S=0.001
Profile Grade - Left and Right Maint. Road
Water Surface Profile, Q 1% = 9,100 c.f.s.
Existing Ground at R/W Line - Right Side
Existing Ground at R/W Line - Left Side
Existing Channel Bottom
Existing 36"ø C.M.P.
STATE ROUTE 237 EAST BOUND
STA. 136+50 MATCH LINE SEE SHEET 14
16
14
12
10
8
6
4
2
0
-2
ELEVATION IN FEET
PROFILE SCALES
HORIZ: 1" = 40'
VERT: 1" = 4'
STATION 125 126 127 128 129 130 131 132 133 134 135 136

REFER TO TRACING FOR LATEST REVISION		
DESCRIPTION	SUB	APPR

REFERENCE INFORMATION AND NOTES

DATE OF PHOTOGRAPHY 2-11-77

1. Flood Control measures to be provided by others as part of the West Bound Bridge Raising Construction.

DATE

DESIGN W.J.S., R.Soto

DRAWN R. Soto

CHECKED

Santa Clara Valley Water District

ENGINEERING CERTIFICATION

PROJECT ENG NEER R.C.E. NO. 22960

Bruce Wilson

DIVISION ENG NEER R.C.E. NO. 15851

ENGINEERING APPROVAL

HEAD DESIGN BRANCH R.C.E. NO. 14455

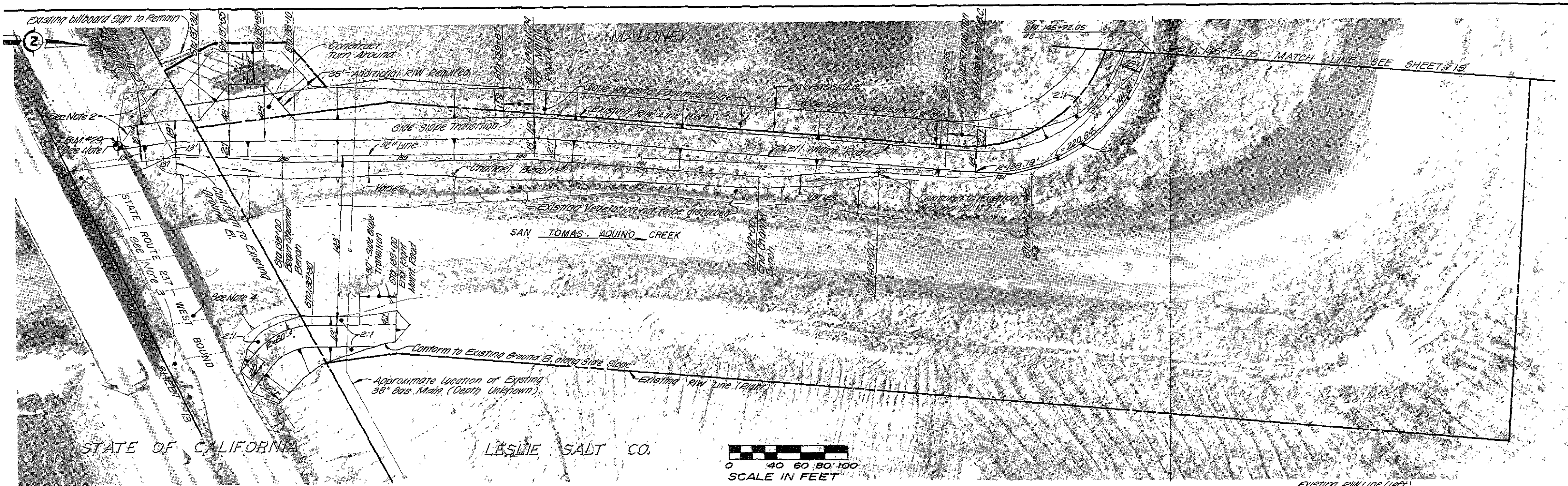
SAN TOMAS AQUINO CREEK

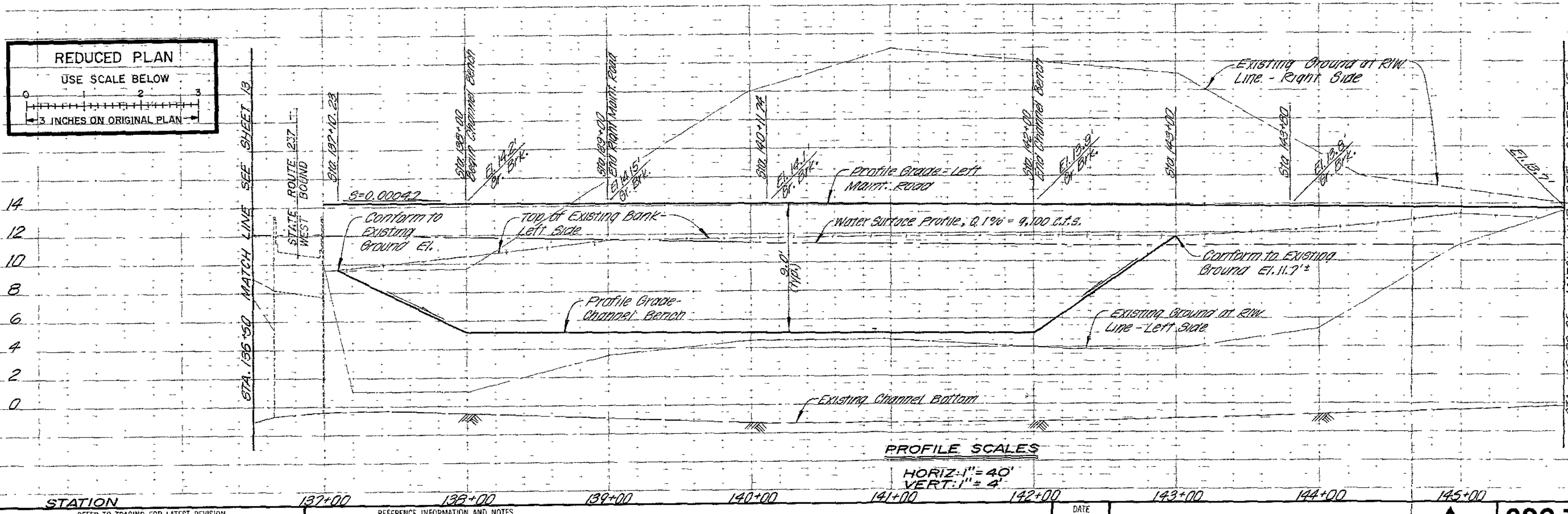
Bayshore Freeway To Holding Basin

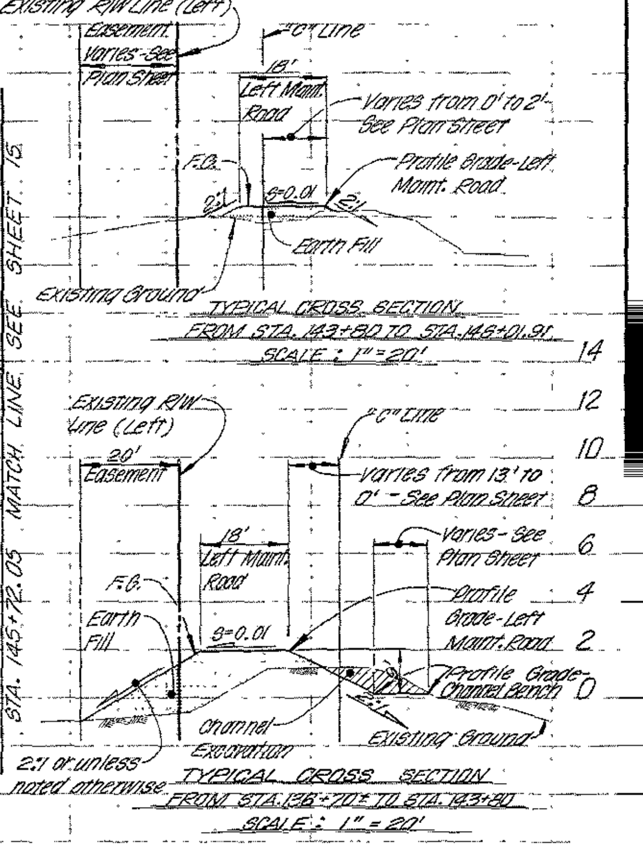
PLAN AND PROFILE

SCALE As Shown

SHEET 13


Existing billboard Sign to Remain
②
Sta. 137+10.23 Begin Maint. Road & P.
Sta. 137+30
Sta. 137+55
Sta. 137+85
Sta. 138+10
Construct Turn Around
35'-Additional R/W Required
Sta. 139+87
Sta. 140+11.74 P.S. Maint. Road & P.
MALONEY
Slope Varies to Easement Line
20' Easement
Slope Varies to Easement Line
Sta. 143+55
Side Slope Transition
Sta. 143+80 Begin Curve B.C.
Sta. 145+72.05 #3
STA. 145+72.05 MATCH LINE SEE SHEET 15
See Note 2
T.B.M. #29 See Note 1
48'
18'
13'
21'
2:1
Existing R/W Line (Left)
Side Slope Transition
"C" Line
Left Maint. Road
18'
2:1
T=141.81'
L=220.64'
R=138.79'
Channel Bench
Varies
Varies
Conform to Existing Ground El. 11.7'±
Existing Vegetation not to be disturbed
Conform to Existing Ground El.
STATE ROUTE 237 WEST BOUND
See Note 3
See Note 4
MATCH LINE SEE SHEET 13
Sta. 138+00 Begin Channel Bench
Sta. 136+90
143'
30'-Side Slope Transition
Sta. 139+00 End Right Maint. Road
SAN TOMAS AQUINO CREEK
Sta. 142+00 End Channel Bench
Sta. 143+00
Sta. 144+22.48 #4
2:1
R=60'
2:1
Conform to Existing Ground El. along Side Slope
Approximate Location of Existing 36" Gas Main (Depth Unknown)
Existing R/W Line (Right)
STATE OF CALIFORNIA
LESLIE SALT CO.
0 40 60 80 100
SCALE IN FEET


REDUCED PLAN
USE SCALE BELOW
0 1 2 3
3 INCHES ON ORIGINAL PLAN
14
12
10
8
6
4
2
0
STA. 136+50 MATCH LINE SEE SHEET 13
STATE ROUTE 237 WEST BOUND
Sta. 137+10.23
S=0.00042
Sta. 138+00 Begin Channel Bench
El. 14.2' Gr. Brk.
Sta. 139+00 End Right Maint. Road
El. 14.15' Gr. Brk.
Sta. 140+11.74
El. 14.1' Gr. Brk.
Profile Grade-Left Maint. Road
Sta. 142+00 End Channel Bench
El. 13.9' Gr. Brk.
Sta. 143+00
Sta. 143+80
El. 13.8' Gr. Brk.
El. 13.7'
Existing Ground at R/W Line - Right Side
Conform to Existing Ground El.
Top of Existing Bank-Left Side
Water Surface Profile, Q 1% = 9,100 c.f.s.
9.0' (Typ.)
Conform to Existing Ground El. 11.7'±
Profile Grade-Channel Bench
Existing Ground at R/W Line - Left Side
Existing Channel Bottom
STA. 145+72.05 MATCH LINE SEE SHEET 15
PROFILE SCALES
HORIZ: 1" = 40'
VERT: 1" = 4'
STATION
137+00
138+00
139+00
140+00
141+00
142+00
143+00
144+00
145+00



TYPICAL CROSS SECTION
FROM STA. 143+80 TO STA. 145+01.91
SCALE: 1" = 20'

TYPICAL CROSS SECTION
FROM STA. 136+70± TO STA. 143+80
SCALE: 1" = 20'

REFER TO TRACING FOR LATEST REVISION

REV	DESCRIPTION	SUB	APPR

REFERENCE INFORMATION AND NOTES

DATE OF PHOTOGRAPHY 2-11-77

1. Basis of Elevation T.B.M. #29 - Cut "a" in Northwest Corner of State Highway Bridge #37-159 over San Tomas Aquino Creek and Mountain View - Alviso Road. Elev. 10.49' (1974 Cross Valley Level Run Datum)
2. Existing Type CL-6' Fence to be Relocated.
3. Flood Control measures to be provided by others as part of the West Bound Bridge Raising Construction.
4. Existing West Bound Bridge to be Raised by others.

DATE

DESIGN
W.J.S., R.Soto

DRAWN
R.Soto

CHECKED

Santa Clara Valley Water District

ENGINEERING CERTIFICATION
PROJECT ENGINEER R.C.E. NO 22946
Bruce Wilson
DIVISION ENGINEER R.C.E. NO 15851

ENGINEERING APPROVAL
HEAD DESIGN BRANCH R.C.E. NO 14455

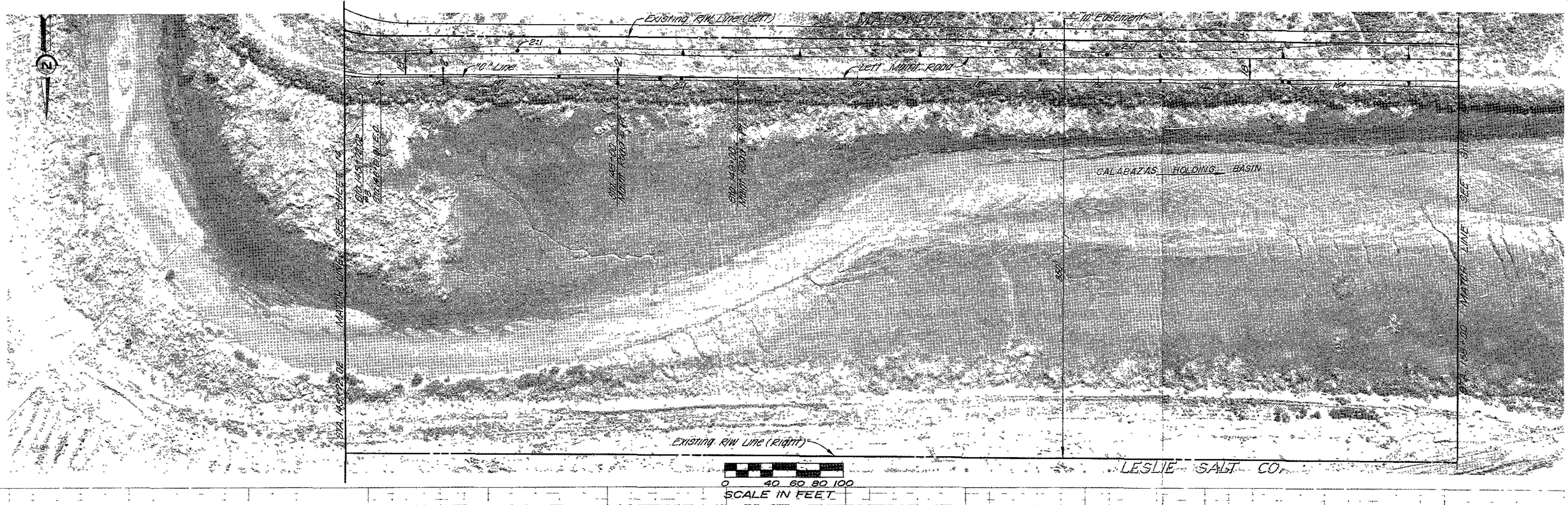
SAN TOMAS AQUINO CREEK

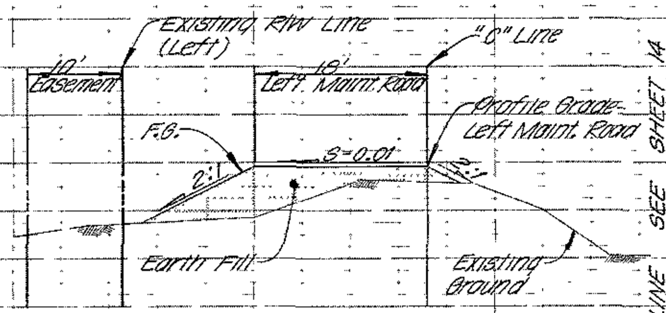
Bayshore Freeway To Holding Basin

PLAN AND PROFILE

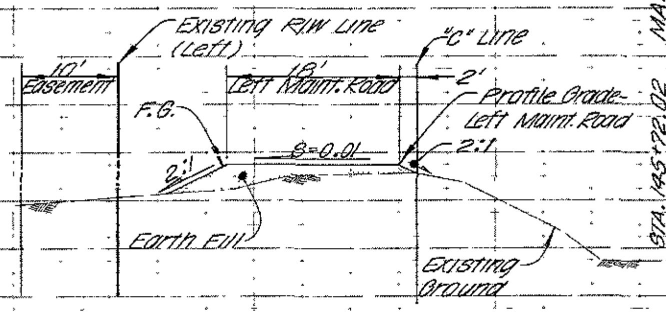
SCALE
As Shown

SHEET
14

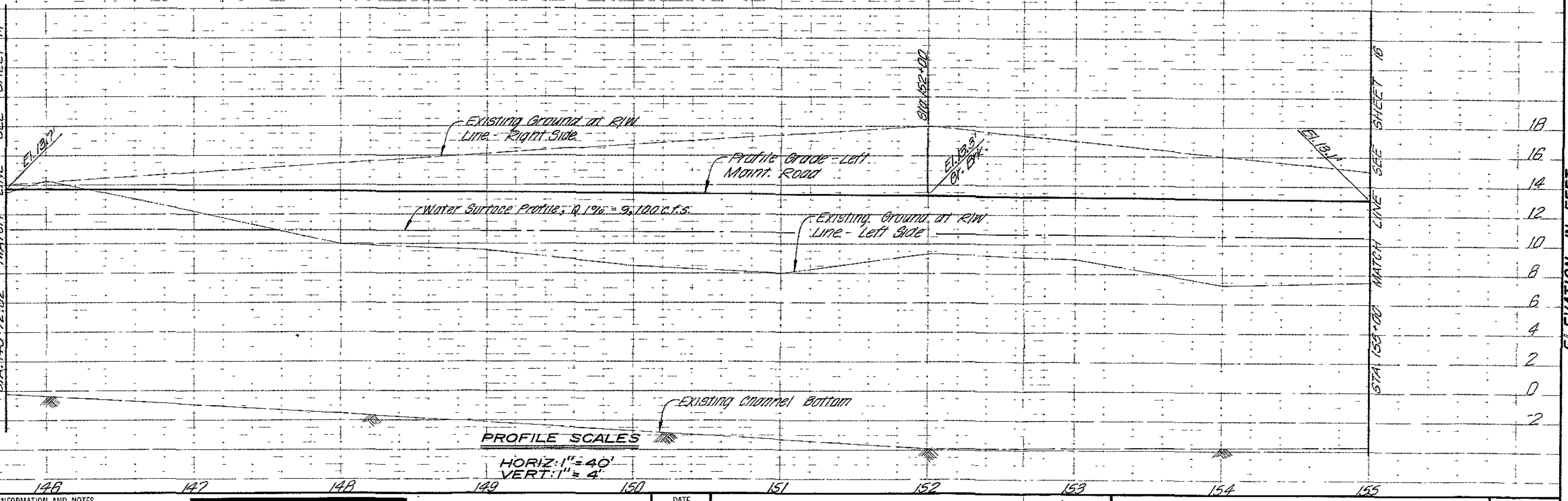




TYPICAL CROSS SECTION
FROM STA. 149+00 TO STA. 161+20
SCALE : 1" = 10'



TYPICAL CROSS SECTION
FROM STA. 146+01.91 TO STA. 148+00
SCALE : 1" = 10'



PROFILE SCALES
HORIZ: 1" = 40'
VERT: 1" = 4'

REFER TO TRACING FOR LATEST REVISION			
	DESCRIPTION	SUB	APPR

REFERENCE INFORMATION AND NOTES

DATE OF PHOTOGRAPHY 2-11-77

REDUCED PLAN
USE SCALE BELOW
0 1 2 3
3 INCHES ON ORIGINAL PLAN

DATE
DESIGN W.J.S., R.Soto
DRAWN R.Soto
CHECKED

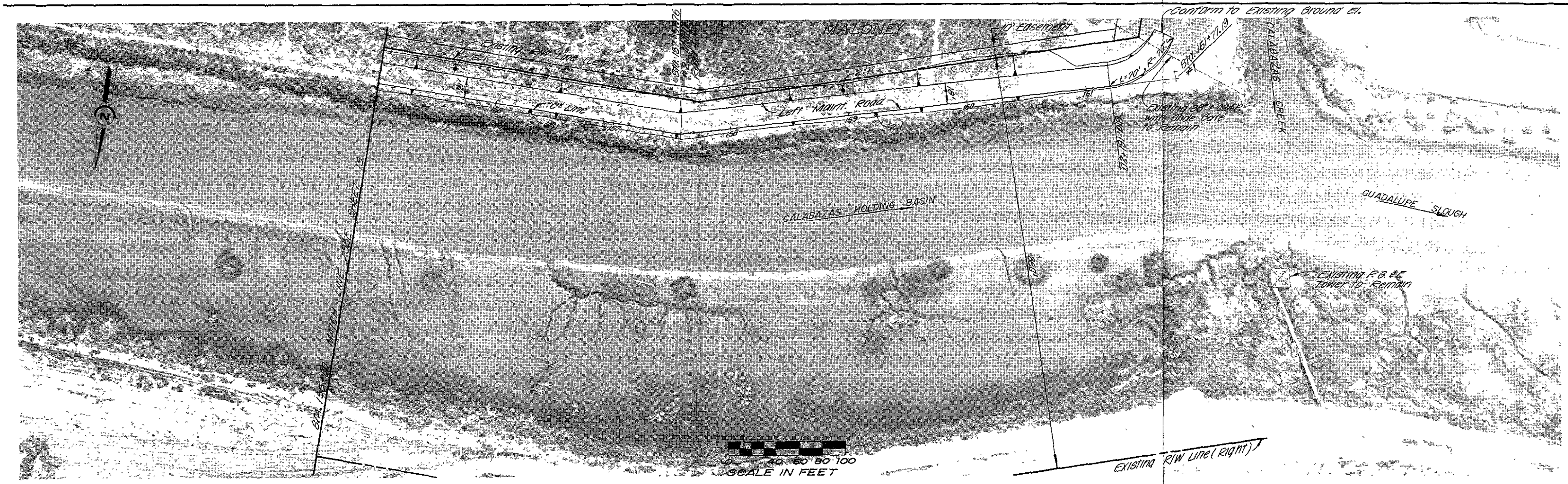
Santa Clara Valley Water District

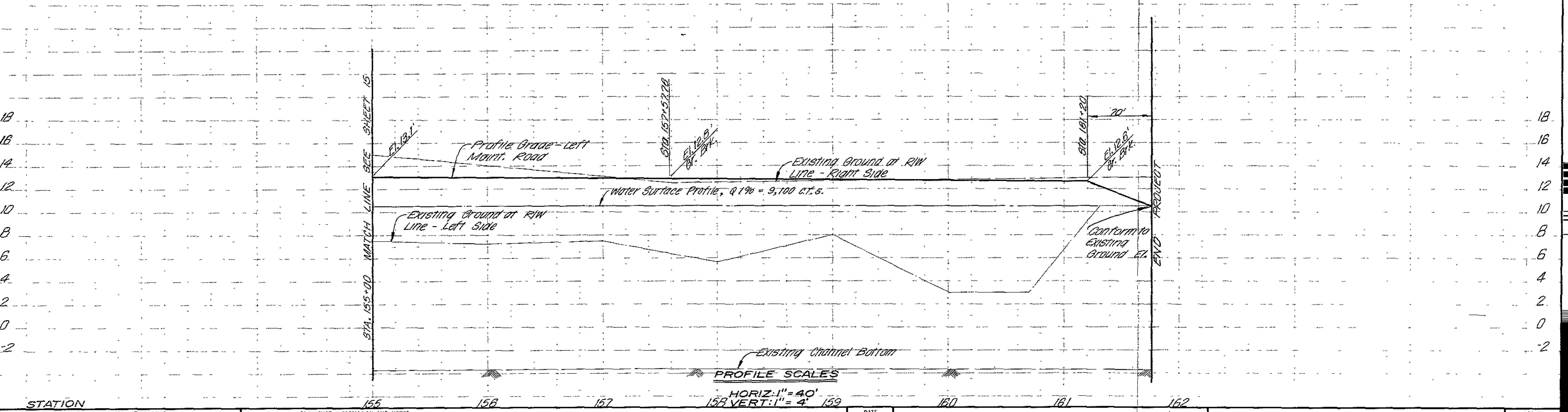
ENGINEERING CERTIFICATION
PROJECT ENGINEER R.C.E. NO. 32943
Bruce Welson
DIVISION ENGINEER R.C.E. NO. 15851

ENGINEERING APPROVAL
Edwin Ferguson
HEAD, DESIGN BRANCH R.C.E. NO. 14455

SAN TOMAS AQUINO CREEK
Bayshore Freeway To Holding Basin
PLAN AND PROFILE

SCALE As Shown
SHEET 15




18
16
14
12
10
8
6
4
2
0
-2
STA. 155+00 MATCH LINE SEE SHEET 15
El. 13.1'
Profile Grade - Left Maint. Road
Sta. 157+57.76
El. 12.8' Gr. Brk.
Existing Ground at R/W Line - Right Side
Sta. 161+20
20'
El. 12.6' Gr. Brk.
Water Surface Profile, Q1% = 9,100 C.F.S.
Existing Ground at R/W Line - Left Side
Conform to Existing Ground El.
END PROJECT
Existing Channel Bottom
PROFILE SCALES
HORIZ: 1"=40'
VERT: 1"=4'
STATION
155
156
157
158
159
160
161
162

REFER TO TRACING FOR LATEST REVISION

REV	DESCRIPTION	SUB	APPR

REFERENCE INFORMATION AND NOTES

DATE OF PHOTOGRAPHY 3/2/77

REDUCED PLAN

USE SCALE BELOW

0 1 2 3

3 INCHES ON ORIGINAL PLAN

DATE

DESIGN WJS, R.Soto

DRAWN R.Soto

CHECKED

Santa Clara Valley Water District

ENGINEERING CERTIFICATION

PROJECT ENGINEER R.C.E. NO. 22948

Bruce Welson

DIVISION ENGINEER R.C.E. NO. 15861

ENGINEERING APPROVAL

HEAD DESIGN BRANCH R.C.E. NO. 14455

SAN TOMAS AQUINO CREEK

Bayshore Freeway To Holding Basin

PLAN AND PROFILE

SCALE As Shown

SHEET 16